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ORIGINAL ARTICLES.

THE INDIVIDUAL EQUATION OF THE PATIENT IN SURGICAL OPERATIONS.*

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ASEPTIC methods have so minimized the immediate danger of surgical procedures, and modern surgical technic has given the surgeon such facility in operating, that nowadays operations are undertaken lightly and performed with comparative safety, and with very little anxiety as to the recovery of the patient from the operation itself, in the majority of cases. Occasionally it happens, however, that a patient dies upon whom an operation has been done of a kind which the surgeon has performed for others many times without any serious result, and after what seems a perfect carrying out of a thoroughly well planned and an ideal operation; also without any manifest contraindication on the part of the patient.

I am sure every surgeon who does much operative work has had occasion to ask himself in a given case, why did that patient die when so many other patients have recovered who seemed in no better condition and who in many instances were actually less able to stand the operation than he was? I believe the answer to this question is, "It was on account of the individual equation of the patient." The fact that there is an average result among a large number of individuals operated on naturally suggests that there is an average vital personality. There are many exceptions to this rule, however. I think surgeons ought carefully to consider these possible exceptions in undertaking any operation of expediency and bear them in mind in prognosing.

It is my purpose to call attention to a few conditions which may affect the reaction of an individual to a traumatism and which may vitally affect the result of an operation. The first of these conditions is heredity. Barring the exanthemata, in which class I may for the instance place syphilis, it is probable that no disease is actually transmitted as such, from parent to child. It has been abundantly proved that individual proclivities both of physique and disposition are transmitted to children from parents (there are probably just as many instances of atavism in the matter of physical qualities as there are in physical appearances and mental qualities of an individual). There is further much evidence to show that there is a chemical individuality which may be transmitted as a family trait. The well-known instances of hemophilia belonging to certain families for a number of generations would indicate this. It is of great importance then for the surgeon to find out the family history of his patient.

The manifestations of heredity in the second generation of syphilitic, of tuberculous and of cancerous families are so nearly related that it seems in some instances they are interchangeable. That is to say, an individual whose parents have had syphilis seems as much disposed to cancer as one whose parents have had cancer. Such an inheritance also renders the child as liable to tuberculosis as if he inherited the tendency directly. I am not able authoritatively to speak in the converse, that is, I have not sufficient evidence to show that the tuberculous and cancerous inheritance also disposes toward syphilis. I believe, however, it would only be fair to extend the parity of reasoning thus far. A cancerous inheritance undoubtedly disposes toward tuberculosis, and a tuberculous inheritance disposes toward cancer. This all means that the physiologico-chemical resistance of the cells and tissues is so reduced by an inheritance of a diathesis that the individual is particularly susceptible to microbic inoculations. Incidentally this may be used as another argument for the microbic origin of cancer.

All surgeons know that individuals react very differently to sepsis. Some are overcome at once, while others bear an exceedingly virulent invasion with comparative safety, and others still occupy a middle ground with reference to vicious micro-organisms. Some individuals after operations recover from most exaggerated conditions of septic peritonitis brought on by fulminating and gangrenous appendicitis or salpingitis, while others, apparently equally strong in every way, succumb to a very mild form of sepsis, even after the most careful and painstaking operation and unremitting care and skilful after-treatment. It is true that all apparently mild conditions of sepsis from appendicitis are really far from being such, as they may possess the potential features of a most virulent and fatal inoculation. On account of a pylephlebitis of the distal branches of the portal vein, thrombosis of these branches may and frequently does exist in cases of abdominal sepsis, subsequent detachment of the emboli laden with streptococci and staphylococci and their lodgment in the liver or in some nearer small vein may serve to determine many of the so-called "inexplicable deaths" which follow "ideal appendectomy" (Dr. A. G. Gerster, in a paper read before the last meeting of the American Surgical Association, very forcibly demonstrated this fact), but why do some cases escape these several manifestations of advanced sepsis, while others with as nearly as human foresight and experience can procure the same careful technic and

*The Address in Surgery delivered before the Pennsylvania State Medical Society.

management, die on account of this blood poisoning? I think but one answer may be given to this. Namely, individuals inherit or acquire varying powers of resistance. Some persons undoubtedly have inherited comparative immunity on account of the superior qualities of the antitoxins and cytolysins of their blood and tissues. That environment and habits also have to do with this is no doubt true, and I will mention this point under another head presently. As Darwin has shown, however, it requires many generations to change materially the outer form and characteristics of an animal by environment. We may fairly conclude that the quality of the cells *does* improve with the general improvement of the physique of the individual, but there is abundant evidence to show that the apparently most robust individual is not always the most resistant to septic conditions. If there were time I might cite numerous instances of this fact, but I am sure, it is thoroughly familiar to you all.

To sum up this head in a postulate, I would say:

1. Dyscrasias may be transmitted by inheritance and weaken the resistance of animal cells to toxins; individuals who have such an inheritance are particularly liable to microbic inoculations, and do not develop antitoxins and cytolysins of sufficient potency to overcome infections. Such individuals are apt to die from very mild forms of sepsis after operations.

Another circumstance which materially affects the results of operation is the:

2. *Environment and Habits of the Patient.*—It is not necessary to argue this point from any profound scientific basis. It is now commonly conceded that human beings, in common with all animals, are markedly modified by their continued surroundings and their modes of living. In the ultimate scientific conclusions this belongs properly to heredity. I wish rather to call attention to some ordinary observations which bear on this matter.

It will be conceded at once that individuals who have habitually and for long periods been subject to very bad sanitary and unhygienic conditions do not bear operations well. My observations and experience have convinced me, however, that the bad conditions of this kind are not confined to city and town life. The advantage of free outdoor life with pure air during the daytime in rural life is, in many instances, more than overbalanced by the lack of ventilation and crowding in the sleeping apartments at night, and the very common habit of eating poor and improperly cooked food, which is prevalent among farmers. Farmers eat a great deal of pork, salt and dried meats, and canned vegetables. They have the advantage, it is true, of fresh fruits in their seasons, but they use these fruits without discretion, usually immoderately while they last, and they very rarely ever have their meals properly cooked. There is no class of people, in my experience, so given to indigestion and the varying concomitant intestinal disturbances as farmers are. The children are commonly poorly nourished and only in early adult life do they seem near the proper standard of development and nourishment. Farmers are so poorly nourished and their digestive organs are usually in such wretched condition that they are not good subjects for severe operations, and they are very liable to septic inoculation.

City people, besides being better fed as to quality of food, have their meals better prepared as a rule, except in the very poorest classes, and they have, on account of daily necessity, acquired a certain degree of immunity to sepsis. Their antitoxins and cytolysins are continually stimulated and are in constant use. They are, therefore, not so liable to septic developments as farmers. Except the very poorest people who live in the congested tenement districts, who are subjected to foul air and surroundings, and who live on scanty and poor food year in and year out, I think city and town-reared people stand operations better than the ordinary farmers.

Besides the environment, *the habits of the individual* have much to do in determining the result of an operation. The excessive indulgence of any appetite lowers the resistance of the whole system to traumas. I have found especially that the excessive indulgence in beer markedly increases the tendency to phlegmonous inflammations. Beer drinkers furnish most fertile soils for streptococcal development. They are also most unfavorable subjects for general anesthesia.

Whisky drinkers are not only difficult to anesthetize but they are very subject to postoperative nephritis, pneumonia and delirium tremens and on account of frequent atheroma they bleed more and they are more apt to die from so-called "exhaustion" after operation.

Vegetarians, or persons who live chiefly on vegetables, do not stand the loss of blood well, and they are peculiarly liable to die from acute anemias. They also react very poorly to saline infusions for the restoration or the substitution of the circulation of the blood in cases of exhaustion after severe hemorrhage. On the other hand meat eaters, the full-blooded and plethoric individuals, do not as a rule stand general anesthetics well. It requires much skill to bring them under the anesthetic and constant and very skilful care to prevent asphyxiation when fully under, especially when ether is used. If the heart be absolutely sound chloroform should be the anesthetic of election in these cases.

3. *Disposition of the Patient.*—Unquestionably, I think, a bright, cheery, sanguine and courageous disposition tends markedly to favorably influence the result of any major operation. I always feel handicapped in operating on a despondent and excessively anxious subject. Nervous energy counts tremendously in the reaction, resistance and tenacity of an individual after an operation. This has more to do with the outcome of a severe operation than mere physical fitness. I hesitate long and undertake with many misgiv-

ings a serious operation on a person who "knows he will die from the operation." Such individuals do recover many times undoubtedly, but if aught goes seriously wrong their mental laxity and lack of nervous tone almost surely bring them to the grave.

4. *Age.*—The extremes of age increase markedly the bad prognosis of an operation. Very young children and very old people do not bear anesthetics well, nor can they stand the loss of blood. Such individuals are apt to die after long operations, and operations done for very vascular tumors, or in regions where complete hemostasis is impracticable. Of 85 deaths after operations which have occurred in St. Luke's Hospital the last ten years, 7 were under five years of age; 10 were five to twenty years; 23 were twenty to forty years; 30 were forty to sixty years, and 15 were over sixty years of age. These I presume are average statistics, and while the number is too small to make any valuable generalization, they indicate that, barring the extremes, the exact period of life itself when an operation is endured does not make any material difference in the result.

5. *Sex.*—This seems to have no marked influence in the result of an operation, provided the physical condition is good.* I think my experience has shown, however, that women bear operations for septic conditions of the peritoneal cavity better than men do. Probably the superior vascularity of the pelvic region in women, which is most frequently the seat of septic inflammations and accumulations, will account for this. Another fact may also influence this result, namely, that men use the diaphragm much more than women do in breathing. The action of the diaphragm tends to draw, by intermittent pressure, and relaxation, the lymph current upward. In men, therefore, septic products are much more apt to ascend to the subphrenic and supraphrenic lymph nodes, a lodgment which is well known to be especially apt to cause fatal results.

6. *Nationality of the Patient.*—This in my experience makes little difference in the result of operations. I have observed, however, that the lower classes of Slavs and Italians, such as are met with in this part of the country, are apt to be very emotional, and are very intolerant of pain, and are very difficult to restrain after serious operations. Crying and extreme restlessness must of course make great difference after some operations, and on this account these two classes of patients are not desirable subjects for major operations.

7. *Physical Condition of the Patient.*—The most important point for the surgeon to find out, and accurately to gauge, *is the physical condition of the patient at the time of the operation.* So-called "laboratory methods" have greatly broadened the scope of the former routine of physical examinations. The accuracy of the determinations of the character of excretions, of the blood and of most of the secretions, nowadays in the laboratories give us certain data which are of immense value. I believe, however, surgeons are inclined to depend too much upon laboratory investigations and neglect the old methods of bedside examinations, or at least they relegate them to secondary importance. I believe that in no other field of medicine do the methods of Zadic so constantly apply, and are of such constant value as in surgery. In some instances the findings of a personal physical examination should supersede or qualify the determination of a laboratory conclusion. For instance, laboratory investigations tell us that an operation performed on a patient whose hemoglobin is below 40 per cent. is usually fatal. Yet I am sure we have all had uninterrupted recoveries and no serious result after many operations done on patients whose hemoglobin was below 40 per cent. It is true most individuals who have a cachexia and, on account of this, slow poisoning and undermining of their health and gradual deterioration of their blood and have less than 50 per cent. hemoglobin, are not safe subjects for operations. It is a different matter, however, if this lowering of the hemoglobin comes from a hemorrhage or from a series of hemorrhages.

Again, it is conceded that albumin and granular casts in the urine indicate that the patient who excretes such urine is a very unsafe subject for anesthesia, especially ether anesthesia, and markedly increases the danger of any operative procedure. Large ovarian and uterine tumors are apt to produce, on account of pressure and mechanical interference with the blood supply and circulation in the pancreas, liver and kidney (chiefly the portal system) just such indications in the urine; the affected organs are relieved and the vitiated renal excretion is entirely remedied by the removal of the tumor, and the operation does not prove extrahazardous in these cases. I might multiply instances of this kind.

I wish to urge the great importance of a careful and thorough physical examination of every patient by the surgeon himself, or by some one qualified to make careful physical examinations. This should be done before even minor operations of expediency. Subjective symptoms may sometimes clearly indicate the seat of a lesion requiring surgical interference, in other cases it requires a careful systematic physical examination to find the disease. For instance, rectal carcinoma is frequently attended by very decided gastric symptoms. I have observed this in a number of cases, notably in one case the gastric symptoms were so pronounced that for months the patient was treated by some of the best internists for gastric disease. After the carcinoma was found and removed the stomach symptoms disappeared entirely.

It is a matter of serious importance that scarcely one medical school in the United States teaches its students to use their *eyes* in examining a patient. Students are laboriously indoctrinated

* My statistics show: Taking out 15 deaths after operations done for bad crushes, which were practically all men, 27 males and 23 females died out of 85 fatal cases.

into the importance of carefully cultivating their senses of touch and hearing, and are taught thus how to discriminate between normal and abnormal protuberances and sounds of the body, but we scarcely can find a student who thinks of first carefully *inspecting* the surface of his patient's body or his extremities in order to see and thus note any abnormalities, and to know how to discriminate between the normal and abnormal contour and color, or tension of the body. Many instances have come under my observation where this lack of training has led to serious errors in diagnosis. Unquestionably, I think both personal, clinical and laboratory examinations and investigations should be made, whenever it is possible to have them done before all serious operations.

Organic diseases of any of the viscera greatly modify the prognosis of operations. Dr. J. R. Bradford* calls attention to certain so-called "latent diseases," that is to say, these diseases are of such a kind that they might exist in a given case without any special evidence of their presence, and unless one makes a careful painstaking examination they might not be recognized. Operations done for some other cause might be particularly hazardous on account of these latent diseases. The diseases mentioned by Dr. Bradford are: (1) Nephritis, (2) diabetes mellitus, (3) typhoid fever, (4) rheumatism, (5) latent cerebral abscess from middle-ear disease, (6) pleural effusions, (7) gastric ulcer, (8) malignant disease of the stomach, (9) gallstones, (10) the rare condition of a high degree of atrophic cirrhosis of the liver in children. This condition may produce symptoms of acute peritonitis. All these diseases may be excited to active conditions from the latent state by any operative procedure and may prove disastrous to the patient.

General arterial atheroma or endarteritis deformans also contributes markedly to the danger of an operation. When this condition is accompanied by an intermittent heart action, no matter how well the patient may otherwise seem to be, the prognosis after any serious operation is very grave; the coronary arteries are involved and the heart is fatty.

As was suggested before, patients who are already in serious septic states, especially those who have septic peritonitis, are very bad subjects for operations. The reason is, in these septic conditions it is frequently impossible to get rid of all the septic matter. There is frequently pylephlebitis of the branches of the portal vein, or infection of the posterior lymph nodes of the peritoneum. The most thorough washing out and drainage will not relieve the patient in these cases. However the all important point *is thorough drainage,* after thorough removal of the septic products and thorough cleansing. The posterior route should be used for men, the vaginal for women. Fowler's position is good for women, for men lumbar drainage is better. Of the 85 deaths after operations which I have had in the last ten years, 40 of the patients were already septic.

Patients who are seriously affected by malaria are also bad subjects for operation, so are also leucocythemic patients.

It is the duty of the surgeon to find out the existence of any organic disease, and reasoning from what he knows of its nature and tendency he should apply this in estimating the effect in his proposed operation.

8. *Extent and Locale of the Operation.*—Aseptic surgery and the technic of thorough hemostasis have robbed extensive operations of much of their danger. There are no "noli me tangere" regions in the human body now. Still there are two regions which seem to be especially unfavorable for extensive operations. I refer to (1) the base of the brain and (2) the thoracic cavity. With great care even these two regions may be invaded without serious results. For instance, I have recently had two very extensive crushes of the cranium which involved the base on both sides as well as the vault, and which required exploration of the base of the brain on both sides, make rapid recoveries even though there were great hemorrhage and injury to the cerebrum. I have also removed a large segment of the thickness of the thoracic cavity in an operation for a secondary scirrhus and sewed the lung to the opening in the walls of the thorax, and finally by using the external surface of the lung to block up this opening have succeeded not only in saving the life of a cachectic woman but also secured an excellent functional result for both lung and thorax. Notwithstanding these and many other good results, notably the closing of many wounds of the heart, which other surgeons have had in these regions, the fact remains that these two are perhaps the least favorable of all the regions of the body to invade. One must always bear this fact in mind in estimating the chances of any case which requires operation in these regions. The scope of this paper will not permit me to go into the reasons for the bad prognosis of operations on the base of the brain and in the thoracic cavity. I must refer my hearers to modern textbooks for further discussion of this subject.

Thus I have tried to show that inheritance, environment and habits, disposition of the patient, age, sex, nativity, physical condition of the patient at the time of operation, the extent and locale of the operation—all have something to do in determining the personal equation of the patient about to be operated on. I reiterate that it is the surgeon's duty conscientiously to endeavor to find all the data which will enable him to determine the importance of all these points with reference to any individual upon whom he intends to operate. This means he must take a careful history of the patient including his family history as far as it may be definitely obtained. Also he must make a careful and thorough physical examination, and call to his aid laboratory investigations. With an experienced and careful sur-

* Lancet, April 4, 1903.

geon I am disposed to lay the greater importance on the personal physical examination, and should rather trust to this than to laboratory findings to determine the possible danger of any proposed operation, taking for granted, however, that an examination of the urine shall be one of the examinations included in my term personal physical examination.

Reflection on this subject and these facts which so critically influence our operations suggests that more difficult than determining when to operate is to know *when not to operate,* and this last is, to the patient, in many instances far more important. Our age is inoculated and thoroughly intoxicated with the furor for operations. I think it is time for thoughtful educated surgeons to study more the prevention of operations than new operative procedures.

Preventive surgery is just as possible and important as preventive medicine. Let us continue to try to learn the cause of the various surgical conditions, and also try to remove these causes and so prevent the disease. As Sir W. H. Bennett has properly said, the majority of surgical operations come from the three most prevalent diseases—(1) cancer, (2) tuberculosis, (3) syphilis. If surgeons would try faithfully to prevent these, fewer operations would be necessary.

We do not yet know the actual agent which causes cancer. We do know, however, that constant irritation of a part, especially where mucous and cutaneous surfaces are in juxtaposition, will produce epithelial cancers. Forbidding the use of a short stem pipe, or *any* smoking, or the filing of the sharp edge of a tooth may prevent epithelioma of the mouth and lips. Attention to little ulcers of the anus, the early amputation of a degenerated uterine cervix, which has previously been neglected after it has been lacerated, may prevent cancers of the rectum and uterus.

Further, it is generally conceded by pathologists as well as surgeons that even after a lesion has started there is a period which may be called the precancerous period, during which a tumor which may subsequently be most malignant has the qualities of a benign tumor, and may be removed with assurance that it will not recur. It is of the greatest importance that every tumor shall be removed as soon as it develops. People generally are not thoroughly impressed with the tremendous importance of this fact. Surgeons should endeavor to educate the people to thorough appreciation of this. By educating the people tuberculosis is finally regarded as a disease which may be prevented, and people have been taught and are being taught what measures to take to prevent this dread disease. Its half brother, the far more dreadful cancer, may also be prevented, at least in some instances. Surgeons first should teach family physicians, and they in turn their families, how to prevent and to stop the progress of cancer.

Temporizing in surgery will not do. People should be taught that when they have any tumor or lesion of any kind which requires removal or operative interference, it is of vital importance to have it done at once. Physicians frequently do not believe this themselves, else surgeons would have far less trouble with cases which have "gone too far."

In conclusion, I beg to appropriate the words of Sir W. H. Bennett:* "In the meantime taking things as they are, it is well that we should beware lest a single predominant factor should be allowed to lead to our regarding, through a small tube only, a subject the horizon of which is absolutely unlimited. It has been said that the basis of surgery is handicraft, and this, in a sense, is true; but surely it is truth only half told, for apart from the issues to which I have referred there is lying behind a far greater thing, the knowledge of when to apply that craftmanship of which every one who now aspires to the practice of surgery should make himself a master. Nothing that has happened in the improvements connected with the practice of our art justifies, so far as I know, the modification by one iota of the edict of the great surgeon, who before advancing science had robbed operations of most of their horror said, 'The all important thing is not the skill with which you use the knife, but the judgment with which you discern whether its employment is necessary or not.'"

VALVULAR DISEASE OF THE HEART AND ITS TREATMENT. CASE OF MITRAL OBSTRUCTION AND INSUFFICIENCY WITH TRICUSPID REGURGITATION AND PULSATING LIVER.†

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To properly care for a patient with valvular disease of the heart one must be aware of the difference between established and ruptured compensation, and also capable of making the clinical distinction. The ability to decide whether hypertrophy or dilatation prevails in a given case presupposes a practical knowledge of physical exploration. Without doubt many persons in whom valvular defects of the heart have been revealed are injured by indiscriminate treatment.

For example, I was called in consultation to see a young girl who had mitral regurgitation. There was no evidence that the consequent dilatation of the heart was not well balanced by the hypertrophy. However, she was nauseated and almost pulseless at the wrists, and the heart was beating and throbbing tumultuously. It appeared that she had been getting large doses of digitalis every four hours for several days for no other reason than that a bruit had been discovered. Here the remedy lay in the stopping of the medicine. Cardiac valves once injured by disease must of

* Lancet, May 23, 1903.

† Read before the Section on Medicine, at the New York Academy of Medicine, Jan. 19, 1904.

necessity remain more or less defective, but within certain limits nature repairs the damage by increasing the muscular power of the heart. Resulting dilatation of the cavities is balanced by hypertrophy of their walls, and it is not until this hypertrophy is overcome by secondary dilatation that treatment is indicated.

The outlook for a patient whose valves are affected depends upon the location as well as the character of the affection. If it be a stationary lesion, that is to say, merely the scar of an old inflammation, other things being propitious, the prospects are favorable. But if there is a progressing sclerosis, the duration of the compensatory adjustment is uncertain and likewise the prediction. In aortic patency without stenosis, though sudden death is always a possibility, the patient may continue to live indefinitely. An associated contraction of this orifice is a saving factor in the prognosis. Obstruction alone is very much less serious than regurgitation. Mitral stenosis and mitral insufficiency are about equal in their eventualities. Neither commonly results in sudden death yet the end begins, however gradual and deferred it may be, with the rupture of compensation. We can say what may happen in a particular instance of valvular disease, but to say what will happen is a different undertaking. A man in whom a mitral insufficiency was noted by me during a routine examination more than twelve years since is still in excellent condition. Sixteen years ago a young man consulted me about an aortic insufficiency, not that he was inconvenienced thereby but because my advice was recommended. Thus far there has been no serious break in compensation. One patient with a mitral insufficiency that was due to a lesion which was stationary and in compensation has been under my observation for twenty-two years, and another likewise conditioned, for twenty-three, and neither in the meantime has suffered therefrom anything more than occasional breathlessness. There was a dentist who came to consult me, in his sixty-third year, on the first appearance of a broken compensation for a double aortic lesion and a mitral insufficiency. Forty years previously, he had been examined by three physicians, at different times, who each made the diagnosis of a valvular disease, and informed him that he could not live more than two or three years at the utmost. With ill-concealed gusto, commenting upon their powers of prognosis, he told me that he had outlived them all many years. Recently there was a young woman, just up from childbirth, in my service at the Hospital suffering from pleurisy and pneumonia, who also had a mitral stenosis of old standing, generally a serious complication, yet, owing to her youth, good constitution and an unbroken compensation, she recovered. Valvular disease that has lasted for long in persons advanced beyond early middle life is apt to be associated with degenerative changes that make an attack of pneumonia or the taking of an anesthetic extremely hazardous. On the other hand, a valvular disease previous to this period, in good compensation, is not necessarily fatal in pneumonia or dangerous in anesthesia. Lastly, there is an instance known to me of a man who lived with a valvular disease of some nature from the time he was eight years old until he was ninety-four, and from the results of which disease, after this remarkable record, he succumbed.

It is my desire when feasible, which is by no means always, in advising a patient with valvular disease frankly to explain the condition of affairs, without provoking undue apprehension, and thereby to forestall a fortuitous rupture of compensation. This would seem to be our duty if we expect to shield him from what is certainly at all times impending. He then can act intelligently, and if he fails to observe our instructions, he alone will be answerable. Excesses of various kinds are prone to lead either to sudden death or to a break that is equally fatal eventually. For instance, a young man with mitral stenosis, but otherwise in excellent condition, who had reason to look forward to many years of comparative activity, through excessive exertion as an athlete brought about a disturbed compensation. After restoring things to their proper relations, by suitable treatment, my earnest advice was that he should forego all violent exercise in future, nevertheless he persisted, despite my warnings, in the practice of wrestling, and in less than two years broke down and died. There is no reason why a vocation or an avocation should be abandoned unless inordinate physical or mental strain is involved, by a person who happens to have a valvular defect for which there is adequate compensation.

Early hours for retiring at night, and sleeping in well-ventilated apartments are advisable. The life of a ready normal sleeper and a believer in fresh air is generally prolonged. Nourishing food in small quantities, eliminating whatever tends to produce flatulence, should be taken with regularity. Habitual light eating rather than any special form of diet best insures against the ills which we acquire but flatter ourselves are inherited. Mild wines may be drunk at meals if custom and taste so demand, but strong alcohol as a beverage at all times should be eschewed. The use of tobacco, except in great moderation, is harmful in cardiac disease. Daily bathing, preferably in warm water, is necessary to keep the skin active, particularly for those whose lives are sedentary. Whether the shock of the cold bath is injurious or not, like many other things, after all resolves itself into the personal equation. Some close observers are aware of a secondary reaction an hour or two after a matutinal cold plunge, even when a warm glow follows the immediate emersion, that amounts to a depressing chilliness. Very hot baths, including the Russian and the Turkish variety, are exceedingly dangerous. Surf bathing and swimming, unless carefully indulged in, are liable to overtax the heart and cause prostration. In regard to the clothing, it should be suitably warm but not cumbersome, and suffi-

ciently porous in texture to insure ventilation. Linen mesh underwear and enough woolen in the shape of other garments for warmth or comfort are in my opinion the ideal combination. Still, woolen drawers may have to be worn by sensitive persons in cold weather owing to the fewer outer coverings of the lower extremities. There should be a frequent change of underclothing, particularly of the stockings. To condemn a patient to inactivity simply because there is a valvular obstruction or leakage though well compensated is the height of mismanagement. Regular moderate outdoor exercise is essential to his bodily welfare. It facilitates the removal of the products of disintegration, and supplies new life to the cells and tissues, including those of the organ whose integrity we are especially desirous of maintaining. Let it be understood, however, that there shall be no violent muscular exertion. No boat racing, football, baseball, wrestling, running, jumping, or any severe athletic contests or heavy gymnastics. Walking, golf, riding, rowing, fishing, hunting, and many games and outdoor occupations that are not too strenuous can be safely permitted. Systematic walking in the open air, preferably upon a level, while practising deep breathing, though possibly not interesting, is the safest of exercises and one of the most beneficial. High altitudes are not well endured and may be dangerous. Worry and excitement are to be avoided as much as possible. Indeed, moderation in everything that pertains to daily life is the keynote of the entire situation. These precautions may be neglected by the subject of a valvular disease with impunity for a certain period, but such negligence is sure to result, sooner or later, in sudden death, or a more gradual rupture of compensation, which last is the beginning of the end, however delayed by judicious treatment.

Although undue shortness of breath is one of the early symptoms of a failing compensation, nearly every patient with a defect of the mitral valve suffers on extra exertion a certain amount of breathlessness. This is without serious significance. It is simply a passing disturbance of the balance in the circulation which is slightly in excess of what occurs under the same circumstances to the average healthy individual. When the compensation is really ruptured, provided death does not follow immediately, there will be evidences of dilatation of the heart, shortness of breath, dyspnea, possibly cyanosis, and cardiac palpitation. The action of the heart becomes irregular, there is usually dropsy that first appears about the ankles, and which eventually becomes general. Passive effusions are prone to collect in the pleuræ and the pericardium. In regard to an irregular pulse in mitral lesions, in which every few beats are full and strong, despite the weakness of those intervening, there need be no particular alarm. Here the few recurring strong beats are an evidence that the heart is really not weak, whatever the cause of the irregularity. Irregularity of the pulse in aortic disease is commonly a serious manifestation. Bronchial and intestinal catarrh are among the very early symptoms of a loss of balance between the arterial and venous circulation. When the ordinary remedies fail in these troubles a little digitalis added to the prescription will sometimes result most favorably. Likewise in regard to periodical uterine hemorrhage. There was a patient of mine with mitral stenosis who was greatly exhausted each month by menorrhagia. This was materially controlled, after the difficulty had been analyzed, by full doses of the infusion of digitalis just prior to and during menstruation.

Whatever doubt there may be about the advisability of letting the patient know that he has a valvular defect, during its period of relative latency, even when all fears are carefully explained away by showing its comparative harmlessness, there seems to be but one course to pursue where hypertrophy of the heart has been overcome by dilatation. To be forewarned is to be forearmed in medical matters, as well as elsewhere, against an end that is threatening. In mitral disease the slight beefy redness of the lips that can be seen if the patient is closely observed after even moderate exercise, and the trifling shortness of breath which occurs, safely can be disregarded if on resting they quickly disappear.

When a ruptured compensation becomes pronounced, and in fact through all grades of disturbed equilibrium, rest is of paramount importance. It is not infrequently all that is required for rehabilitation. To me there is little reason in the attempt to restore a cardiac muscle that has lost its elasticity by subjecting it to further stretching by the strain of such performances for example as mountain climbing. Massage in properly selected cases is often serviceable. And also as a sequence to the all-important period of rest some of the so-called resistance-movements. In passive exercise there are, when the time is wisely chosen, many features that are desirable as well as in active exercise. On the whole, in my opinion, the various baths that are advised, such as those of Nauheim are more suitable for functional than for valvular diseases. Indeed, they are of no use in stationary lesions, and are hazardous in the extreme where there is extensive dilatation. When venous engorgement is excessive, and there is manifest distress therefrom, much relief can be obtained through venesection. A concentrated solution of magnesium sulphate taken about an hour before breakfast is a valuable means of depletion through the bowels especially when there is much anasarca. Some of the disturbing symptoms of valvular disease are frequently best alleviated by small repeated doses of calomel and soda bicarbonate. After more than twenty-five years experience in the employment of digitalis in heart affections, my conviction is that properly used and in its purity it is one of the few drugs that are indispensable. It matters not what valve is affected, some preparation of digitalis, preferably the tincture or the infusion, is the remedy for ruptured compensation. Contrariwise, it can

only work mischief where there is a perfect adjustment between the means and the avenues of circulation.

In consultation with a practitioner, who was strongly prejudiced by his previous training against the use of digitalis in aortic lesions, he could not be persuaded to give it in a case of aortic and mitral insufficiency that was in the extremes of a destroyed compensation. The drug was prescribed, however, and in large doses with results that were efficacious. Digitalis, slows the heart and strengthens its contractions, and that meantime it allows somewhat fuller regurgitation, and also increases tension in the peripheral arteries, is no argument against its supreme usefulness. The proof of the value of the remedy rests upon the good results that have followed its employment, and not upon theorizing in regard to the imaginary consequences of prolonged diastole or of increase in arterial pressure. Manifestly there are conditions of the heart that are beyond the help even of digitalis. Sometimes, however, it fails to act, owing to a lack of purity, or to inadequate dosage, or to physical impediments. For instance, there was a young woman under my care with valvular disease that was so affected by the mechanical pressure of a consequent dropsy that medicine would not act upon the heart, kidneys, or even the bowels until her legs had been punctured and the general tension removed. A man came to me some years ago who was so dropsical that he was literally water-logged. He had been taking eight minims of the tincture of digitalis, four times a day, without the desired results. An increase of the dose to twenty minims was all that was needed to entirely remove the anasarca. Formerly a woman was put under my care in a similar condition, and she had to have the legs punctured, the chest aspirated, and repeated doses of a concentrated solution of magnesia sulphate, before she began to react to the digitalis. Now and then it is necessary, on account of a fault in the selection or the preparation of the crude drug, to seek a new source of supply if the digitalis is not working with satisfaction. The dose of the tincture of this drug varies from ten to twenty minims, and of the infusion from one to four drams, according to the urgency of the case, and to individual idiosyncrasies. It should not be repeated, for any length of time, more often than once in three or four hours, and when large doses are being taken the patient should maintain a recumbent position. The poisonous effects of digitalis are nausea and vomiting, decrease in the quantity of urine, fulness and slowness of the pulse followed by smallness and irregularity, with violent cardiac palpitation; its beneficial results are shown by relief of dyspnea, disappearance of dropsy, and cyanosis, and by increased strength, fulness, and steadiness of the pulse, together with an abundant renal secretion. As medical examiner for many years of a number of young physicians, quite above the average in attainments, competing for positions upon the house-staff of one of our large hospitals, my opinion is, if I may be pardoned for the digression, that, while remarkably well informed in most respects, a certain portion of them are lamentably deficient in a knowledge of the untoward and the toxic effects of the potent drugs they are expected to prescribe. It would seem wiser to burden their minds, in the teaching, with a smaller number of remedies, and to charge them with the vital importance of knowing all about the few that are essential, so that they may be able to readily distinguish between what is due to disease and what is sometimes the outcome of medication. The correct use of so powerful a remedy as digitalis predicates always the utmost watchfulness. Drugs at best are double-edged tools and require careful handling. Of all the substitutes for digitalis, the most valuable is strophanthus. It should be given in about five-minim doses once in four hours.

Strychnine is an excellent heart tonic but its use in large doses should not be continuously prolonged as it is liable to result in exhaustion. Nitroglycerin is available to relieve undue tension of the arteries, and it and digitalis are sometimes given with benefit in conjunction. Acetate of potash in sufficiently large amounts acts well when a diuretic is required. A free movement of the bowels with magnesia sulphate often will promote a desired action of the kidneys. In palpitation where there is excessive hypertrophy, the tincture of aconite in three minim doses every four hours is beneficial. Whenever valvular disease is complicated by anemia and malnutrition, which is not seldom, Fowler's solution of arsenic and the tincture of the chloride of iron are indicated in connection with nutritious food. Morphine and atropine combined, when simpler remedies fail, are helpful in palpitation, restlessness and sleeplessness. Small doses of these two drugs are often efficient in relieving cardiac pain and dyspnea. In full doses morphine is dangerous in pulmonary edema. The shortness of breath and distress caused by this condition must be treated by digitalis, by dry cupping, and by catharsis, and, when associated with cyanosis, venesection. Since this transudation of serum into the air cells is probably due in many instances, according to Welch, to an especial weakness of the left ventricle, digitalis is the chief reliance, but, when the entire lung has become edematous, the outlook despite every expedient is commonly hopeless. During my service last winter there was a patient, who, with a valvular disease, was suffering from a hitherto unaccountable orthopnea. It proved to be due to a large effusion in the right pleural cavity, and immediate relief was brought about by aspiration. Hydrothorax either bilateral or unilateral is a cause of difficult breathing that is now and then overlooked. Granting this to be the case, a withdrawal of the fluid is indicated, and should there be also a passive effusion in the pericardium the operation will facilitate its reabsorption. Puncturing the legs of a patient with extensive edema, under aseptic precautions, is a safe and most useful procedure.

When compensation has been reestablished, it

is well to begin with gentle massage, followed by resistance movements, and finally, where practicable, to enjoin pedestrianism. A daily walk in the fresh air out of doors, short in the beginning and cautiously increasing the distance, is nearly always salutary. Those who neglect this systematic exercise are apt to suffer in consequence. The pains and aches that often deter a person from making any exertion, and even the palpitation, frequently are overcome by persisting in that which originally caused the discomfort. With the circulation again in equilibrium digitalis may be entirely given up for the time being, or continued in small doses if it seems preferable indefinitely. Just how long a given case will survive the first serious break in the compensation under even the most intelligent direction is a difficult question to answer.

A great deal depends upon what is more or less beyond clinical observation. For example, the extent of histopathological disintegration in the heart itself. When the lesion is the result of an extinct endocarditis, instead of an ever advancing sclerosis, the integrity of the cardiac muscle is more apt to be preserved, and the outlook correspondingly encouraging. A patient suffering from a valvular disease was brought into my ward upon a stretcher, in an absolutely helpless condition, with general edema including hydrothorax and hydropericardium. In a few weeks compensation was restored by appropriate treatment, and she walked out of the hospital and disappeared. About a year afterward, having in the meantime been entirely without medical care, she came to light in the same distressing predicament, with extensive edema of the lungs in addition, to which, in spite of renewed efforts in her behalf, she finally succumbed. There was a man in attendance at my clinic for eight years with a mitral stenosis, who had marked edema of the legs and thighs, and cyanosis of the lips and extremities when he first appeared. During this period, after the break in the compensation was repaired, he was able to do light work much of the time, though he was kept under regular medical inspection. A patient, aged fifty-six years, suffering from an excess of dilatation of the heart over hypertrophy entered my dispensary in March, 1900, with a large sacculated aneurism of the ascending aorta, and with aortic insufficiency and obstruction, and mitral regurgitation. His heart gave dulness on percussion for two and a half inches, on a level with the sternal insertion of the fourth rib, to the right of the median line, and six inches to the left, and from that same level down the sternum to one and a half inches below the ensiform cartilage. The balance was renewed between hypertrophy and dilatation and he has continued in a fairly good condition for three years, despite this enormous cardiac enlargement; an increase in the size of the heart that must exceed even the wide limits of the superficial area marked out by percussion, and yet the man goes about with relatively little discomfort. There was a lawyer who toward the close of a very active career consulted me in his eightieth year for a first rupture in the compensation of an evidently long-standing double aortic lesion with mitral regurgitation. He recovered and lived, despite numerous temporary relapses, for seven years thereafter, but, he was constantly under treatment and general supervision. My experience leads me to the conviction that it would be a wise precaution for every patient with heart disease who has once begun the downward journey of a failing compensation, if not previously, to place himself under the direction of his physician even during the intervals of illness when there is seemingly no such necessity. An approaching disturbance can then be detected early enough to ensure, what otherwise is without certainty, the prospects of restoration.

In connection with the subject of this monograph, the following history is offered in exemplification:

Mitral obstruction and insufficiency, with consequent tricuspid regurgitation; pulsating liver with probably hypertrophic cirrhosis.—Case.—P. A., aged thirty-four years; occupation, masseur; born in Germany; married; nineteen years a resident of this country; was admitted to my department of the New York Post-Graduate Dispensary in 1899, and brought to my clinic for examination. Family history unimportant; personal history: Never had the diseases of childhood; was always healthy up to his twenty-second year, when he had gonorrhea. He has been an intemperate drinker of beer for at least twelve years. Admits having sometimes drunk as much as a hundred glasses in twenty-four hours. His sexual proclivities have been unrestrained. Shortness of breath while walking first appeared about five years before coming to the dispensary. Two and a half years ago his abdomen became swollen, and it was tapped and a small amount of fluid withdrawn. Present complaint: Exceeding shortness of breath, and pain in the left side, on exertion; swelling of the legs; enlarged abdomen; prostration. Physical examination: Edema of the lower extremities; cyanosis of the lips and tips of the fingers; marked pulsation of the deep and superficial veins of the neck, especially of the right side, with venous regurgitation; ascites; veins on the surface of the abdomen prominent; dilated hypertrophy of both sides of the heart with an excess of dilatation; weak mitral systolic, presystolic and tricuspid cystolic murmurs; pulmonary and aortic second sounds not accentuated; liver enlarged; extends from the fourth rib in the right nipple line down below the free border of the ribs to the level of the umbilicus; a heaving expansile pulsation of the liver not communicated directly from the heart or the aorta, but from a regurgitation of the blood down the inferior vena cava into the hepatic veins themselves. Lungs slightly edematous. Treatment: Paracentesis abdominis; concentrated solution of magnesia sulphate one hour before breakfast; tincture of digitalis minims 15 every four hours; strychnine sulphate gr.

1/60 three times a day; dry diet and rest in bed as far as practicable.

In the course of a few weeks, there was no more dropsy of the peritoneum; heart sounds and murmurs became more distinct; edema disappeared, and, practically, the cyanosis; pulsation of the veins of the neck and of the liver gradually diminished; finally the tricuspid bruit was no longer distinguishable. The mitral systolic and presystolic murmurs remained, but the latter became inconstant. The compensation was restored, the tricuspid murmur cured, and the patient thus far maintains the established equilibrium.

Recapitulation.—Judicious treatment of a patient with valvular disease of the heart presupposes a knowledge of the distinction, and an ability to discriminate clinically, between adequate and inadequate compensation; possibility is one thing, probability is another, and finality quite another in the prognosis of these affections; although not always feasible, it is nevertheless desirable frankly to explain the situation, where dilatation from valvular defects is balanced by hypertrophy, in order to forestall a fortuitous disturbance of equilibrium; ordinary occupations and recreations not too strenuous need not necessarily be abandoned; systematic outdoor exercise, preferably walking, is not only permissible, but, to maintain the integrity of the heart muscles, actually indispensable; violent exertion, exciting emotions, and excessive eating and drinking are positively injurious; temperateness in all things pertaining to daily existence should be the watchword; with failing compensation absolute rest is of paramount importance, and, not infrequently, all that is necessary for rehabilitation; digitalis in this condition irrespective of the valve affected when drugs are required is the sole remedy that cannot be dispensed with; large doses may be given for a short time and small doses for a long time or indefinitely; strophanthus is one of the most reliable substitutes for digitalis; nitroglycerin, calomel, aconite, iron, arsenic, magnesium sulphate, and strychnine are valuable adjuvants; maximum doses of strychnine should not be continued for extended periods without intermission; finally, ruptured compensation is the beginning of the end, however long deferred by intelligent management.

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Post-mortem Irritability in Nerves.—In comparing the differences in irritability between the nerves of animals which have been anesthetized for some hours before death, and those of animals which have not been so treated, W. D. CUTTER and P. K. GILMAN (Proc. Am. Physiol. Soc., Am. Jour. Physiol., Feb. 1, 1904) found that the nerve removed from the anesthetized and cooled animal survives for a longer time than that taken from the animal at the beginning of the period of anesthesia, the difference in time of survival being as much as four or five hours. A more marked difference, however, is that the anesthetized nerve exhibits throughout a much greater irritability.

THE CLINICAL SIGNIFICANCE OF PAIN IN THE EPIGASTRIUM.*

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PAIN in the epigastrium may be due to hyperacidity, hypersecretion, hyperesthesia of the stomach, nervous gastralgia, biliary colic, certain affections of the spinal cord, cancer, gastric ulcer, pancreatitis, some forms of appendicitis, and Addison's disease.

The pain of hyperacidity comes on one or two hours after meals, and ceases at the end of the digestive period. It may be temporarily relieved by the ingestion of food or alkalies. There is sometimes general tenderness over the whole epigastric region; but pressure never causes actual pain.

The pain of periodic hypersecretion comes on suddenly in the midst of perfect health. Besides pain there is extreme thirst and vomiting of large quantities of hot sour fluid, which upon examination proves to be gastric juice. Even if no food or drink is taken, the stomach in a few hours fills up again, to be again emptied by vomiting. The patient becomes greatly exhausted, his pulse grows feeble and his extremities cold. These symptoms may continue for two or three days, then suddenly disappear; and the patient in an astonishingly short space of time be restored to health. The following is a typical case of periodic hypersecretion so far as symptomatology is concerned; but instead of the hypersecretion being due to a neurosis, it was the result of gastric ulcer:

Case I.—On October 21, 1899, J. R., hotelkeeper, thirty-three years of age, consulted me in regard to his stomach and gave the following history. During the latter part of 1897 he began to be troubled with distress after meals, and much bloating and belching. On Thanksgiving Day, 1898, he became suddenly ill, and was at once obliged to assume the recumbent position. During the first three days and nights of his illness he experienced, every two or three hours, severe pain in the gastric region, which was temporarily relieved by vomiting a large qauntity of hot sour fluid. He also suffered greatly from intense thirst, and became so exhausted that he was scarcely able to turn himself in bed. At the end of three days the pain and vomiting ceased, so that he was able to retain liquid food; after which time he began to improve rapidly. He was in bed altogether two weeks, and during that period lost fifty pounds in weight; but from the time he was able to leave his room, his recovery was as rapid as the onset of his illness had been sudden; for in a month his health was completely restored and he had fully regained the weight he had lost. He had a second attack in February, 1899, a third in September, 1899, a fourth in April, 1900, and a fifth in June, 1900. A specimen of the vomit sent to me during one of these attacks proved upon examination to be gastric juice, mixed with

* Read at a meeting of the Pittsburg Academy of Medicine.

food particles, Töpfer's test showing that free hydrochloric acid was present in more than normal amount. He had during the period before mentioned two hemorrhages from the stomach, one following and the other preceding an attack of hypersecretion.

The chronic form of hypersecretion, commonly called Reichmann's disease, is usually associated with hyperacidity. There are pains in the epigastrium which come on two or three hours after meals. Very soon vomiting appears as a new symptom. At first it occurs only occasionally but later on two or three times a day, sometimes it also occurs in the early morning (about two or three o'clock) and is then preceded by a long and severe attack of pain (Einhorn).

In patients suffering from chronic hypersecretion, the stomach always contains gastric juice in the fasting condition; and this is the most important point characteristic of the disease.

Case II.—On January 23, 1900, T. W., aged fifty-six years consulted me in regard to his stomach and gave the following history: Twenty years ago he had a hemorrhage from the stomach which greatly weakened him. After the hemorrhage he was in bed for a month, and lived during that time on liquid food. Ever since he has been troubled with constipation, and has had attacks of vomiting once or twice a year. In April, 1899, he had such an attack, and for a week blood appeared in his stools and also in the vomit. In the autumn of 1899 he spent a month in England, returning October 28. During this trip he felt perfectly well, his bowels moved naturally, and he did not vomit. Soon after reaching home, however, his bowels became constipated, and vomiting returned. Since November 28, 1899, till the present time, that is about two months, his bowels have never moved without an enema; and he has had attacks of severe pain associated with extreme thirst and vomiting. At first the vomiting occurred only at night, about one or two o'clock, the vomit being large in quantity and very acid. Lately he has been vomiting two or three times a day, usually from two to four hours after meals.

Physical Examination.—Chest intact, liver normal, stomach and descending colon full of gas. Knee-jerks present, pupils respond to light and accommodation. Examination of stomach contents after Ewald's test meal shows that free hydrochloric acid is present in excess, Töpfer's test giving an acidity of 44, total acidity 56. His urine was always alkaline after an attack of vomiting, but did not at any time contain sugar or albumin.

Jan. 24. Last evening, five and a half hours after supper, shooting pains began in his epigastrium, and extended through to the subscapular region. In seven and a half hours after supper he induced vomiting, which did not relieve the pain, and he did not sleep until five o'clock in the morning. The vomited matter presented a clear appearance and contained no food particles. Free hydrochloric acid was present, Töpfer's test giving an acidity of 28, total acidity 56. Erythrodextrin was present, but there was no trace of sugar.

Jan. 25. He ate for dinner last evening roast beef and toast and experienced no pain or vomiting during the night and slept well.

Jan. 26. Last evening he again ate roast beef and toast for supper. Two hours after this meal he had severe pain and vomited several times. Urine this morning alkaline.

Jan. 29. He ate for supper last night roast beef, dry toast and boiled rice. He had no pain or vomiting during the night. This morning, before he had eaten anything, I obtained by expression two ounces of liquid mixed with mucus; but the expressed fluid did not contain any food particles. I then washed his stomach, and found no rice grains in the wash water. Examination of the expressed fluid showed that free hydrochloric acid was present, Töpfer's test giving an acidity of 20, total acidity 32. No trace of sugar was found. The only point which throws any doubt upon the genuineness of this case is the history of the previous hemorrhage from the stomach. This patient left for home on February 6, that is, fourteen days after I first saw him; and since that time I have no written history of his case.

In hyperesthesia of the stomach, the pain does not appear ten or twenty minutes after taking food, as in ulcer, but immediately after eating; it follows the ingestion of liquids as well as solids, and is only partially relieved by vomiting. There is no circumscribed spot of tenderness; but the whole epigastrium is sensitive to pressure (Fenwick).

In nervous gastralgia the pain is intense; either sharply localized or diffuse. Patients double themselves up to relax the abdominal muscles; and avoid deep breathing, coughing or speaking aloud. The face is pale, distorted with pain and covered with cold sweat; and there may be a condition of collapse, with a sensation of impending death, and attacks of unconscoiusness. Sometimes the attack ends suddenly with vomiting; at other times the normal condition is restored gradually (Ewald).

In biliary colic the attacks of pain appear only at intervals, and have no relation to the taking of food. The pain comes on abruptly, and is chiefly referred to the right hypochondrium and umbilical region. There is usually tenderness over the situation of the gall-bladder; but pressure upon other parts of the abdomen often affords some relief. Chills and fever are common symptoms. Severe vomiting frequently occurs during a paroxysm; but emptying the stomach does not relieve the pain. Jaundice is apt to follow an attack (Fenwick).

The gastric crisis of tabes is thus described by Charcot: "Suddenly, and frequently with an attack of fulminating pains, the patient complains of pains which begin in the groins, ascend along

both sides of the abdomen to the epigastrium where they become fixed. At the same time there is almost uninterrupted and exceeding painful vomiting, the vomit consists at first of food, later of a mucous fluid which is sometimes mixed with bile or tinged with blood. This is accompanied by marked nausea and vertigo as well as by cardialgic pains which at times reach a terrible degree of intensity. These gastric pains may appear at the very beginning of the disease and then belong to the so-called pre-ataxic symptoms, but they may not disappear even when the disease has reached its full development with complete ataxia."

In cancer of the stomach pain is the most constant of all the symptoms, occurring, according to Brinton, in 92 per cent. of all cases. The pain begins at a comparatively early date and never entirely disappears, though there may be remissions and exacerbations. It is not localized to one spot, does not depend on the taking of food, has not the severe gastralgic paroxysms of ulcer and is not relieved by vomiting or by the completion of digestion.

The pain of gastric ulcer usually comes on from ten to twenty minutes after the ingestion of food, reaches its maximum at the end of two hours and disappears at the completion of gastric digestion. Frequently, however, vomiting occurs soon after meals, and this generally affords relief. In rare cases, the pain becomes continuous and, according to Fenwick, if the ulcer is situated near the pyloris, and is adherent to the pancreas, the distress is chiefly experienced in the intervals of digestion; and is temporarily relieved by food and draughts of water. I believe, however, that pain may be caused, two or three hours after meals, by a hyperacid juice coming in contact with the ulcer, and this condition is also temporarily relieved by food or alkalies.

In suppurative or perforating appendicitis the patient is seized with violent pains in the abdomen which at first may be felt either over the entire abdomen, on the left side of the abdomen, or in the epigastric region, but very soon they settle in the right iliac region (Einhorn).

In regard to pain in the epigastrium, resulting from disease of the pancreas, I will simply quote from Robson and Moynihan on Diseases of the Pancreas, a work published in October, 1902: "Pancreatitis may be acute, subacute or chronic." Fitz says, "Acute pancreatitis is to be suspected when a previously healthy person or sufferer from occasional attacks of indigestion is suddenly seized with violent pain in the epigastrium followed by vomiting and collapse, and in the course of twenty-four hours by a circumscribed swelling, tympanitic or resistant, with slight rise of temperature."

"Between subacute pancreatitis and acute pancreatitis no hard and fast line can be drawn. The former has usually a sudden onset with acute pain and vomiting associated with constipation; but the collapse is not so marked as in the acute form, and may even be absent. The upper abdominal region does not become so rapidly swollen, and vomiting is less severe, and less prolonged. At other times the onset may be more gradual, although the symptoms may be similar. Tenderness over the pancreas is well marked, and, on account of the tympanites being less than in the acute form, it may be possible to feel the swollen gland, especially under an anesthetic. Constipation gives place to diarrhea, and pus or blood may be noticed in the stools which have a very fetid odor. The pulse is less rapid and less thready than in the acute form, and the temperature is more regular. We have seen the temperature reaching 104 and 105° F. and yet the pulse to vary between 90 and 100. The morning temperature may be normal and the evening temperature high for several days or even weeks. The pain occurs in paroxysms, but there is also a constant dull pain at the epigastrium. The patient may lose the more urgent symptoms and appear to be really improving; but the loss of flesh and feebleness continue and relapses usually occur, leaving the patient more and more feeble until death supervenes from asthenia. Albuminuria is pretty constant, but glycosuria is rarely present, and lipuria is an unusual symptom. Chronic pancreatitis is quite distinct from the acute or subacute form, although it is possible that some of the latter cases end in chronic interstitial pancreatitis. As clinically seen, it usually arises by extension of the inflammation from a chronic catarrh of the pancreatic duct extending from a gastro-duodenal catarrh, though it is frequently associated with biliary or pancreatic lithiasis or with gastric, pyloric or duodenal ulcer. Its course varies. The onset may be quite gradual and painless, or it may be ushered in by a severe pain at the epigastrium, followed by jaundice resembling a gall-stone attack, and associated with nausea and vomiting, and perhaps followed by a feeling of chilliness or even a rigor. The pain, however, is not over the gall-bladder, and does not pass around the right side to the subscapular region, but is central, and passes backward to the mid-scapular region or around to the left side; thus resembling stomach rather than gall-bladder pain. Tender spot is usually above the umbilicus in the middle line, and not over the gall-bladder, as in cholelithiasis. When once jaundice has come on it tends to deepen with each attack, until it becomes continuous and chronic. The paroxysms of pain may be repeated more or less frequently, or there may be no paroxysmal pain, merely a dull ache deeply seated, burning and boring in character. A swelling of the pancreas may sometimes be made out, but as the recti are rigid because of pain and tenderness in the epigastrium, it can usually only be discovered under anesthesia. Loss of flesh and strength are well-marked symptoms in all cases. Vomiting in some cases may be absent, but there are usually a want of appetite and flatulent dyspepsia, and always a sense of fulness and weight at the epigastrium

for some time after food. Jaundice is not necessarily present at first, though it is usually present at some stage of the disease and is often well marked; but, as was pointed out some years ago by Claude Bernard and by Dr. Walker, of Peterboro, the stools are white, even when the pancreatic fluid alone is absent from the intestine. Diarrhea is often present and the stools are offensive and may be fatty. Albuminuria is common, and glycosuria may occur, but the latter is probably only present in cases where the whole gland is affected or where the islands of Langerhans are involved. Fever may be absent, but in some cases the temperature runs a hectic course, always rising in the evening and falling in the morning. This is especially the case where ague-like paroxysms occur.

In Addison's disease there is often intense pain in the epigastrium, radiating to the hypochondriac regions and sometimes by reason of its intensity dominating all other symptoms of the disease. Previous to the appearance of the digestive disturbances and epigastric pain there is, however, a permanent sense of weakness and exhaustion, the lack of power and debility frequently presenting a striking contrast to the relatively good general appearance of the patient and the abundance of abdominal fat (Neusser).

THE SIGNIFICANCE OF PUS AND BLOOD IN THE URINE.*

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THERE is nothing unique, sensational or pretentious in this subject. The clinical significance of pus and blood in the urine may interest only a few, yet, if I have observed correctly, these physical phenomena receive but scant consideration. Special workers in genito-urinary surgery have for the last fifteen years written eloquently of, and demonstrated skilfully, the improvements in diagnosis in this line, and yet many do not realize that in diseases of the urinary organs, more perhaps, than in any other system in the body, success depends upon an early and accurate diagnosis and prompt interference. In the entire category of diseases of the urinary organs, pyuria and hematuria are more constantly present and more diagnostically significant than any other symptoms. This affords sufficient reason for a close analytical study of these symptoms.

Pyuria.—Given a specimen of urine containing pus, the clinician's duty is to determine the source of this abnormal constituent and there, possibly, to discover its cause and direct the treatment. That the finding of the court of inquiry may be errorless, all evidence, direct and circumstantial, must be taken.

Family history has its bearing, an hereditary predisposition to tuberculosis, rheumatism or cancer should be considered. More especially should we ascertain the personal history of the patient. This, of course, is significant when it reveals diseases of the urinary organs; yet it is none the less important to take note of certain constitutional ailments in the course of which complications involving the kidneys occur.

If we will proceed in this systematic manner, we are directed in our search to the seat of trouble and greatly aided in determining the etiological pathology. When possessed of all collateral information obtainable, we should in every case of pus in the urine conduct our examination from the meatus urinarius inward along the urinary tract until the seat of disease is discovered.

Urethra.—In both male and female, pus from urethral disease ordinarily flows spontaneously from the meatus, or may be squeezed or expressed therefrom. In the male, in deep-seated urethral inflammation, the pus may not be in sufficient quantity to be so detected. You may then employ the "two-glass" test, *i.e.*, have the patient to void urine first into one glass, then after an ounce, say, is passed, catch the remainder of the urine in a second glass. If the pus is from the urethra, the urine in the first glass contains pus and shreds, while that in the other is clear. If both specimens are cloudy, it shows that there is some involvement internal to the vesical sphincter. In women, especially those infected with gonorrhea, pus may be squeezed from the open mouths of Skene's ducts alongside the *meatus urinarius* or a peri-urethral abscess may discharge through the meatus.

Pus of urethral origin is thus easily recognized. Coupled with the history and associate symptoms, the diagnosis is readily made. Should, however, our investigation eliminate all pus producing diseases of the anterior urinary tract and the catheter specimen of vesical urine contain pus, we must now enter upon a most careful analytical search to determine its source. Is the pus from the bladder? Is it from the ureters or kidneys, or, perchance, may it come from some extravesical but communicating suppurating focus?

The chemical analysis of the urine gives us our first clue. If the urine be alkaline, the pus is probably of bladder origin. Rosenfeld* claims that "the greatest differential point is the quantity of albumin in the urine. If the pus proceed from the bladder, the albumin is low; about 1.5 per cent. or less. If from the kidney, 3 per cent. or more." His explanation is that the kidney, which is the seat of purulent infection, is almost certain to secrete albuminous urine.

A microscopical examination of the centrifugalized urine containing pus will also show an abundance of epithelia. Many expert urologists attach the greatest consequence to the character of epithelium in localizing the seat of inflammation. Guiteras† holds that the kind of epithelium points quite clearly to the seat of inflammation; and Manley contends that upon it alone we may elucidate the diagnosis, while Osler, Musser and

* Read before the Middle Tennessee Medical Association, November 19, 1903.

* La Sem. Med., Mar. 26, 1902.
† Medical Record, Nov. 8, 1902.

Tyson all practically disregard it as determining the source of pyuria. We should be inclined to hold that an abundance of vesical pavement epithelium would indicate cystitis. We cannot, and should not rely upon the chemical and microscopical test. They are merely aids to a diagnosis. There are several intravesical diseases supplying pus to contaminate the urine in the bladder.

Prostatic enlargement in old men with residual urine invites infection by catheterization or otherwise. The pus from prostatic abscess and suppurating seminal vesicles in young men may overflow the sphincter and contaminate bladder urine. Careful rectal and bimanual examination should discover these conditions.

Inflammation of the bladder characterized by frequent and painful micturition, pyuria, hematuria, etc., is almost universally held to be a very common affection.

The revelations of the cystoscope have convinced many of us that the teaching of Kelly is correct, that "universal cystitis is a very rare affection, especially in women." It is quite a common picture to find the trigonum inflamed; but rarely the entire bladder; and that condition so frequently designated as cystitis, is due to some definite intravesical disease other than mere infection, or else a localized inflammation. But more frequently it is irritability of the bladder, symptomatic of disease elsewhere. Yet inflammation of the bladder is one of the most common sources of pyuria, recognized by its classical symptoms, presumably, and definitely determined only by cystoscopic examination.

After infection, the most common cause of vesical pyuria, is a foreign body in the bladder, usually a calculus. Its presence is readily recognized by the sound, bimanual examination and cystoscopy. In cases of enlarged prostate and pouching of the bladder, a stone may escape ready detection and in these subjects, cystoscopy is often very difficult and unsatisfactory on account of the hemorrhage. In these cases where the symptoms point very directly to vesical trouble, and in which the diagnosis is not determined by the ordinary means, Fenwick advocates, and has employed for ten years, supravesical cystoscopy—a method of examination not likely to become popular.

Ulceration of the bladder is rarely a primary disease, but its symptom—pyuria—may be one of its first clinical manifestations. It is usually of tuberculous nature, secondary to tuberculous infection of the genitals or kidney. Yet, we may find, as both Casper and Newman have taught, a single, simple ulcer of the bladder. Tumors of the bladder seldom cause pyuria in their early stage, unless they obstruct the urethral opening and give rise to urinary retention. Hemorrhage more frequently proclaims their presence.

Pyuria is the outcome of infection, introduced from without or occurring from the bowel under inviting conditions, and is a late symptom of vesical tumor. The presence of vesical neoplasms is made known by the symptoms, hematuria, vesical pain and tenesmus, reflex renal pain and the detection of the tumor by bimanual and cystoscopic examination. If, in our examination, we have eliminated all vesical sources of pyuria, we must bear in mind that pus of extravesical origin often contaminates the urine. Suppurating foci in the pelvis pyosalpinx, dermoid cysts (Kelly), appendicitis (Keene), etc., may discharge purulent matter into the bladder. We command through the cystoscope such a thorough view of the entire inner surface of the bladder when that organ is inflated, that there should be no difficulty in discovering such an extravesical source of pyuria.

But to proceed along anatomical lines with our examination, there may be nothing in the bladder to account for the presence of pus. Where, then, should we look for the source of supply? The ureters are rarely the source of primary infection. They become involved by continuity with an ascending infection from the bladder, or descending infection from the kidney.

Renal suppuration inducing pyuria may be recognized in one of three ways: (1) By seeing the purulent flow from the ureteral orifice through the cystoscope; (2) by microscopic examination of the urine obtained from each kidney with the ureteral catheter or segregator. With bladder clean and properly inflated either with water or air, preferably the latter, the vesical orifice of the ureter is brought into view. The appearance of the mucous membrane about the orifice often tells the tale. If a ureter is in the habit of discharging purulent urine intermittently or continuously, its lips and surrounding mucous membrane are eroded, mammillated and congested. This is quite suggestive of an irritating discharge. In comparison with the healthy side, it may be conspicuously different. More conclusive, however, is it to see the purulent urine flowing from the orifice, while the opposite side puts forth intermittent jets of clear urine. It is equally important to find, upon different examinations, that sometimes there is no urine from one orifice, while the other discharges physiologically. This intermittent arrest of the ureteral discharge of purulent urine is quite diagnostic of pyonephrosis.

In order that we may observe pus or cloudy urine from the ureteral orifice, there must be quite a liberal admixture of pus. Microscopical quantities of pus may indicate just as serious a lesion as a copious discharge, and, therefore, we cannot always rely upon the cystoscopic view. If, then, we are still undecided as to the source of the microscopical quantities of pus, having eliminated all question of its vesical origin, what means have we of determining its renal source? The Harris segregator is an uncertain instrument. I have repeatedly tried it and regard it dangerously misleading. The only positive way of determining the renal origin of pyuria is, as before stated, in seeing the puriform fluid flow from the vesical orifice of the ureter, or else

microscopically examining the urine obtained through the ureteral catheter.

This leads us to the consideration of the last part of our subject: What renal conditions may give rise to pyuria? The common suppurative diseases of the kidney, viz., pyelitis, pyonephrosis, pyelonephritis and renal abscess may all intermittently or continuously mingle their pus with the urine. It is not the purpose of this paper to enter into the causes and symptoms of these conditions in detail, but let it suffice for the present, to say that pyelitis is frequently a secondary infection, ascending in character, consequent upon some obstruction and infection of the lower urinary tract. And so with pyelonephritis, while pyonephrosis is more frequently due to calculus, and renal abscess to the localization and pathological action of the *Bacillus tuberculosis* or some of the common pyogenic organisms. The microscopical examination of the purulent urine withdrawn through the ureteral catheter, will in a great measure differentiate these several conditions by showing the character of the epithelium, the character and quantity of cylinders and furthermore, the presence of the specific microorganism.

In pyelitis, the pyuria is constant; yet, when the ureteral catheter is introduced, the first urine collected will show the greater abundance of pus. If this urine is microscopically examined, epithelium from the pelvis of the kidney only may be found. But it is not by the ureteral catheter alone that we make the diagnosis of pyelitis. The history of the patient is valuable. We know that pyelitis is generally secondary to infection in the lower urinary tract, consequent upon obstruction. Hence it is quite common in those exhibiting urethral stricture, prostatic enlargement, vesical tumors and cystitis. Nor must we lose sight of the fact that it occurs as an infrequent sequela of certain exanthemata. It is usually an infection due to the *Bacillus coli communis.*

A form of pyelitis—and subsequently pyelonephritis—is occasionally met with in pregnancy. I have seen several such cases; one with Dr. Frank Glenn, of Nashville, another diagnosed, but not proven, with Dr. Witt, and a third case, recently, with Dr. McCampbell, of Nashville. It is a complication seldom observed until the latter months of pregnancy, attributable to compression of the ureter by the gravid uterus, and to infection with the colon bacillus. When a pregnant woman develops lumbar pain of sudden onset, usually with severe symptoms, viz., local tenderness, chill and pyrexia, with acid pyuria, we should think of this complication. It rarely requires surgical intervention, but *may* do so.

Pyelitis in children is of sufficient importance to deserve mention. It is especially common in infant girls. It is a colon bacillus infection and is quite frequently noticed as occurring after some inflammation about the anus or genitals. The points that guide us to its diagnosis are: Pus and mucus in the urine, the acid character of the urine, great variation in the temperature, pain on being moved, rigid lumbar muscles, and what is more to the point, says Thompson, "Unlike any other disease, except malaria in infancy, it causes rigors." As a complication of typhoid fever, pyelitis may occur. Garnier and Lardennois* formulate the following conclusions: "That typhoid fever can give rise to renal suppuration, pyelitis or pyonephrosis; that the signs often appear in the course of the fever, but it is usually not until after the convalescence that the diagnosis of renal involvement is made."

Pyelonephritis.—A suppurating kidney usually succeeds upon a pyelitis, but here the secretive structure of the kidney is involved and the urine contains, in addition to pus, epithelia from the tubules, tube casts and fragmented blood corpuscles. The serious constitutional involvement, the fluctuating temperature, the succession of chills, vomiting, general lethargy, a tendency to somnolence, marked decrease in the amount of urine, even to anuria, proclaim the character of this grave form of renal suppuration.

Pyonephrosis.—A retention of pus in the pelvis of the kidney may be suspected when the urine voided shows the presence of pus intermittently. The diagnosis of this condition becomes beautifully accurate, sometimes upon simple cystoscopic examination. A patient recently entrusted to my care by Dr. Thompson Anderson, of Nashville, was subjected to several cystoscopic examinations. Upon some occasions pure pus was seen to flow from the vesical orifice of the ureter. At other times nothing would pass, although the ureteral orifice would be kept in the field of vision for several minutes.

If the obstruction causing the pyonephrosis will permit the passage of a ureteral catheter, pus and blood in drops, drams or ounces may be withdrawn. If to this examination we link the symptoms of those conditions causing ureteral obstruction, such as calculus, movable kidney or ureteral compression, we should have no difficulty in arriving at a diagnosis.

Tuberculosis of the kidney involving its cortical structure, may not give rise to pyuria, but when the abscess opens into the pelvis of the kidney, the urine is contaminated. This urine is infectious.

Not infrequently we find the tuberculous ulcers in the bladder and ureters. A presumptive diagnosis of this variety of renal tuberculosis may be made without a detectable number of bacilli in the urine, but the only conclusive evidence of renal tuberculosis is in finding Koch bacilli in the renal urine. Renal urine may become contaminated with pus from renal tumors, cystic and solid, echinococcal growths or from extrarenal sources, as in communication with appendiceal, perirenal, gall-bladder and other suppurating foci.

In conclusion, we must regard pyuria only as a symptom of many pathological conditions, involving any of the several parts of the urinary tract. It is only of diagnostic value when we

* La Presse Médicale, April 13, 1901.

ascertain its source; and he will be the most successful in his treatment who is most searching in his investigations.

Hematuria.—The appearance of blood in the urine is alarming to the patient and he insistently demands of the attending physician that he offer an explanation of its cause, and afford means of relief. The careful and conscientious attendant realizes that it is only a symptom of a pathological process somewhere in the urinary tract, and should proceed to ascertain the seat of lesion by exclusion. There are certain facts possessing general diagnostic value in hematuria, and to these we should give consideration. The family history, as we shall show later on, has its bearing. Indeed, there is a form of hematuria known as congenital of familial. Other individuals have, by inheritance, tuberculous, gouty or rheumatic tendencies. Constitutional conditions not infrequently are the cause of hematuria. Place of residence is of importance; in tropical countries, parasitic hematuria is not infrequent. Previous illnesses and conditions may direct us in the right lines of inquiry. It is quite important that we take cognizance of the age of the patient. It is further important that we ascertain under what conditions the blood is observed in the urine. Does it flow spontaneously from the penis as in urethral inflammation? Is it expressed by a contraction of the bladder at the close of micturition as in prostatic and vesical troubles? Does it occur symptomlessly, or is its flow preceded or attended by pain pointing in the one case to tumor, in the other to calculus? Is it augmented by exercise, and allayed by rest, as in renal calculus? Is it associated with active disease phenomena in other organs, as we find tuberculosis of the kidney often complicated with similar deposits in the lungs and pleuræ? So do we find nephritis with hemorrhage, complicated with cardiac changes, and an enlarged spleen may explain the hemoglobinuria of malaria. All facts bearing upon the general and local conditions of the patient must pass under our review, for be we ever so skilful in our investigations, there will remain a few cases in which the pathogenesis is obscure.

While I attach the greatest value to the cystoscope and ureteral catheterization in determining the source of hematuria, I am not one who is prone to hastily attach my faith to new things, to the utter disregard of old and tried methods. "The friends thou hast and their adoption tried, grapple them to thy soul with hooks of steel." Furthermore, the cystoscope is not in the hands of every practitioner; there are conditions which preclude its use, and who among us will dare assert that ureteral catheterization is an easy performance? Therefore, let us be "old fogy" enough to consider for a few moments, the simpler methods of determining the source of blood in the urine; proving our conclusions, when necessary and feasible, by cystoscopy and ureteral catheterization. To avoid repetition, we will take up these questions separately in considering hemorrhage of the several parts of the urinary tract from without inward.

The detection of blood in the urine is usually simple enough by ocular examination of the specimen. The color of the urine mixed with blood varies from a rosy tint to scarlet red, dark brown or black according to the quantity of blood and the length of time it is retained after its escape from the vessels. The chemical tests, while accurate enough, are more troublesome than the microscopical test, therefore the microscope is preferred for the detection of minute quantities of blood, insufficient to colorize the urine. The presence of blood having been determined it is now our duty to ascertain its source.

When blood occurs from the urinary tract anterior to the urethral muscle, the blood, if in sufficient quantity, will spontaneously escape from the meatus or the "two-glass" test may be tried. If the hemorrhage is from the prostatic portion of the urethra, the blood is passed with the first portion of the urine only; if the bleeding is of small quantity. If the bleeding is more copious, the pressure of the blood overcomes the resistance of the internal sphincter, and the bladder urine is admixed with blood. In general we may say that urethral hemorrhage occurs independently of micturition, or with the first portion of the stream, and, if profuse, is passed in long thick clots. In prostatic hemorrhage of moderate amount, there is blood both at beginning and close of urination. If profuse hemorrhage, it mixes with the bladder urine.

I shall not enter into detail upon the causes of urethral and prostatic hemorrhage—they are known to us all—but proceed at once to the consideration of hemorrhage from the bladder. The common causes of hemorrhage from the bladder are: Cystitis, stone, neoplasm and tuberculous ulceration. Cystitis, as we have elswhere remarked, rarely develops except as a complication of other conditions. The history of the patient, the opportunity for instrumental infection, followed by the distressingly acute symptoms—polyuria, dysuria, pyuria, hematuria and the constitutional impression—as denoted by general discomfort, chill and fever, are usually sufficient to declare a diagnosis in the acute stage. In the chronic condition, cystoscopy is necessary to eliminate simulating conditions.

A stone in the urinary bladder rarely causes profuse bleeding; the blood is intimately mixed with the urine which also contains mucus, pus and crystals. The hemorrhage is induced by exercise and is allayed by rest, and oftentimes the bleeding is most profuse at the close of micturition. These facts, accompanied by the other classical symptoms, point very clearly to vesical calculus. The positive diagnosis of its presence is made by bimanual examination, sounding and cystoscopy.

Tumors of the bladder in a large percentage of cases,—84 per cent. says Fenwick—make known their presence by the occurrence of hemorrhage. The bleeding occurs at the end of urination. It is spontaneous and unaccompanied by other

symptoms. It may be insignificant in quantity, rarely profuse at the outset. This symptomless hemorrhage is characteristic of vesical tumors. It may continue for a few days and then cease. Its recurrence may be postponed for weeks, months or years. It is in some measure controlled by rest. The feature to be noted in connection with it is, that at first hematuria from bladder tumors is unaccompanied by other symptoms. In advanced cases we have engrafted the symptoms of infection upon obstruction to the outflow of urine and also of ureteral obstruction as signalized by the renal ache. We should try and make our diagnosis by bimanual examination. The great danger to be feared in tumors of the bladder, is infection. Therefore, cystoscopy must be most aseptically conducted. The hindrances to this method of examination are sometimes insurmountable; we may find it difficult to get the bladder sufficiently clear of blood; the beak of the cystoscope, though judiciously handled, excites additional hemorrhage, and when the growth is large, we may be unable to pass the cystoscope or succeed in inflating the bladder. It is, however, by the aid of this instrument that we gain the most accurate idea of the character, location and seat of these growths.

Tuberculous Cystitis.—When cystitis develops without some apparent cause and persists in spite of treatment, we should think of the possibility of it being tuberculous. In such cases, frequent urination and hematuria, moderate in amount, are the leading symptoms. Our diagnosis rests upon the discovery of tuberculous lesion in the epididymis, prostate, or seminal vesicles, or, as I believe, more frequently in the kidney. The cystoscope shows tubercles, disseminated or grouped over the mucous surface of the bladder, or else ragged, irregular necrotic ulcers, and the final and conclusive test is finding tuberculous bacilli in the urine. In pregnancy, the pressure is sometimes so great that the vesical veins become varicose and rupture. This is one of the exceptional causes of hematuria during pregnancy. Similar conditions have been recognized in fibroid and other abdominal tumors.

Renal Hemorrhage.—The diagnosis of hematuria of renal origin is based upon the following points: (1) If the blood is thoroughly mixed with the urine, appearing with the first and terminal flow, it is presumptive, though not conclusive of renal hemorrhage. (2) When the bleeding is profuse from the kidney, long worm-like decolorized blood clots are passed. They are much thicker, lighter in color, than the clots passed from ureteral or bladder hemorrhage. In one instance in my own experience, the clots, some three inches long, were mistaken for a lumbricoid. Mr. Morris records an instance where he opened a bladder suprapubically and removed a mass consisting of a cord the diameter of a pen holder, 6½ inches in length, of unbroken blood clot. The source of microscopical quantities of blood is not so easily located. If the blood cells are found crenated and fragmented, it rather indicates their renal origin. A great proportion of albumin would further suggest the kidney as the seat of trouble, but the only conclusive test of renal hemorrhage is the view obtained through the cystoscope or the examination of a specimen of urine from the ureteral catheter. It must not be inferred from this statement, that it is necessary at all times to subject a patient to intravesical examination to satisfy ourselves clinically, of the renal source of hematuria. There are many symptoms and physical signs occurring in the course of renal pathology, upon which we may make a working diagnosis without resorting to these modern and refined methods. Furthermore, the amount of hemorrhage may preclude the intravesical examination.

There are many causes for renal hemorrhage: Calculus, traumatism, tumors, tuberculosis, nephritis and movable kidney are the most common; hematuria is also met with as the result of the mechanical irritating effect of uric acid as a complication of various constitutional disease, especially the exanthemata and malaria. Exceptionally it occurs during pregnancy or following the administration of certain drugs; and in tropical countries, from parasites. There is a class of hematurics in which we are unable to ascertain the cause described by Klemperer as "essential" or "angioneurotic." In this class may be included cases of neuralgic hematuria and hemophiliacs. We do not presume in every case to be able to assign the cause for the hematuria, but the quantity, the character of bleeding, the time of its occurrence, conditions exciting it, other urinary phenomena and the general symptoms attending it, will in many instances enable us to very definitely declare a pathological diagnosis.

Denaclara* says, "In tumors of the kidney, hematuria occurs as a symptom in from 40 to 68.88 per cent." It has the following characteristics, according to Guilet: (1) it is often spontaneous; (2) it is not influenced by repose or exertion; (3) it occurs at any period of the disease; (4) it is repeated at variable intervals; (5) it is usually profuse; (6) lasts from one to six days; (7) it is often preceded by pain. As further aids to the diagnosis of renal tumor, we find the presence of tumor, the age of the patient, perhaps glandular involvement, in many cases varicocele, and often a very serious grade of constitutional cachexia.

Renal Calculus.—Hematuria due to a stone in the kidney is traumatic in nature. The hemorrhage proceeds from the pelvis of the kidney usually. The urine, therefore, does not contain blood casts. Of course, exceptionally the calculus may be imbedded in any portion of the cortical substance of the kidney, exciting a nephritis, the urine showing casts and albumin. Other symptoms precede the occurrence of hemorrhage as a rule. The amount of blood is usually very slight, generally microscopic in quantity, though it may be copious. The blood appears after exercise and disappears on rest; is quite noticeable

* Thèse de Lyon, 1899.

after an attack of renal colic. A small, rough stone may excite profuse bleeding.

Renal Tuberculosis.—Pousson believed that tuberculosis of the kidney, like pulmonary phthisis, passes through a stage of congestion before it reaches suppuration. Newman records cases of hematuria of four years, and one of thirteen years before evidence of renal tuberculosis became decisive, and I have seen one case—patient of Dr. Harrison, of Columbia—in which hemorrhage antedated by six years all other symptoms. In support of this idea, of congestion, hematuria is often the earliest symptom of renal tuberculosis. Therefore, a spontaneous appearance of blood in the urine, unaccompanied by other symptoms, should suggest renal tuberculosis; but usually these first hemorrhages are microscopical in quantity, and we are led to their detection only when there is frequent urination, especially at night, which is a strong suggestive symptom of renal tuberculosis. In the more advanced stages, when there is breaking down of the tuberculous abscess, hematuria is more constant and may be copious. It is mingled with pus and débris. As a rule, the hematuria from tuberculosis is scant in quantity, intermittent in its appearance and is not excited by exercise. In two instances I have observed alarming hemorrhage from tuberculous kidneys. We may infer the nature of the exciting cause, if the individual is a female somewhat under middle age; if she has complained of polyuria; has hectic phenomena and digestive disturbances. Further suspicious evidence would be the detection of healed or active tuberculosis in other organs. A tuberculous kidney is not necessarily an enlarged kidney, and it may be quite movable. Microscopically, the urine shows leucocytes, fat globules, pus, red corpuscles and shrunken epithelium. If the bacilli of Koch are found, it is conclusive evidence of the tuberculous process. Yet, thus far, we have not determined conclusively that the seat of trouble is in the kidney. The findings in the bladder urine may be sometimes misleading. We can definitely locate the source of the hemorrhage only by cystoscopy and perhaps it may be necessary to use the ureteral catheter. These methods will definitely incriminate the guilty organ, and, what is of equal importance, show the condition and efficiency of the other kidney.

Nephritis.—Abundant unilateral renal hematuria may occur in subacute and chronic nephritis. Senator does not believe in unilateral Bright's disease. Belfield has collected 55 cases of chronic renal hemorrhage proven by one of the sure ways of diagnosis; 18 of these showed chronic nephritis. This, then, is one of the common causes of hematuria. These cases are especially suitable for the Edebohls' operation.

Movable Kidney.—It is no unusual thing to meet with hematuria in movable kidney. It is a passive hemorrhage, generally, attributed to torsion of the renal vessels. Movable kidneys do not twist their pedicles; they simply glide downward, and the explanation of the passive congestion is probably traction on the renal veins, inducing a passive hyperemia. This at first, as Newman explains, leads only to albuminous urine. Under increased hyperemia, blood appears. Cabot* records a case in which the blood lost reached such proportions as to induce serious anemia. It was controlled by placing the patient in Trendelenburg posture, and recurred when she assumed a standing position. This was a unique case, for, as a rule, the hemorrhage in a movable kidney, is only microscopical in quantity and not an essential feature in the diagnosis of this abnormality. Rovesing† reports a case of passive hematuria of the kidneys due to tight lacing.

Hematuria of Pregnancy.—In the MEDICAL NEWS, May 13, 1899, our President, Dr. Young, records an interesting case of hematuria of pregnancy. This phenomenon is very rare when due to the gravid state of the woman alone, excluding other specific causes. Bouman‡ has collected 17 cases. The pathogenesis may be ascribed to venustasis due to compression of the large abdominal vessels and of the ureter by the child's head in the pelvis. Chievetone regards it simply as a symptom of toxemia due to hepatorenal insufficiency. Of course these cases of hematuria during pregnancy become interesting only as a class when all recognizable causes are excluded. Ordinarily, constitutional treatment is sufficient. The hemorrhage ceases after delivery. Copious and uncontrollable hemorrhage may call for the interruption of gestation.

Gout and Rheumatism.—Hematuria may occur in rheumatism and gout. These cases are regarded by Musser as traumatic, analogous to calculus hematuria. An excess of salts mechanically irritates the kidney. The blood is microscopical in quantity, but none the less important.

Congenital, Hereditary or Family Hematuria.—In the *Lancet*, May 3, 1902, Guthrie reports that he has the knowledge of this form of hematuria in 12 persons, 8 of these were brothers and sisters or first cousins. Their mothers are two sisters who are themselves subject to this complaint. These two sisters had two brothers, both of whom were similarly affected. The author refers to Attlee's three cases of recurrent hematuria in one family. The characteristics of this form of hematuria are: (1) It is hereditary, familial and congenital. (2) It may be persistent for many years; it may be intermittent. (3) The paroxysms of hematuria are usually accompanied by pyrexia, headache, vomiting and lumbar pains. Duration of attacks usually several days. There may be months or years between attacks. (4) Not associated with ascites or the ordinary signs of nephritis. (5) It is not due to an excess of salts, nor is it attributable to any known eruptive disease.

We are all familiar with hematuria from certain drugs: Rhubarb, turpentine, etc., but I

* Boston Medical Journal, Feb. 27, 1902.
† British Medical Journal, Nov. 19, 1898.
‡ Monatsschrift f. Geb. u. Gyn., June, 1903.

deem it of some importance to call your attention to an observation of Langdon Brown* that it is now frequently suggested to administer urotropin throughout the course of enteric fever to prevent renal complications. He records two cases in which 10 grain doses of this drug, three times a day produced pronounced hematuria. Occasional cases of hematuria, due to Bilharzia hematobia are reported.

There yet remains a class of cases in which unilateral symptomless hematuria occurs. These cases are variously classified as (1) idiopathic, (2) essential, (3) angioneurotic or symptomless hematuria. The French Congress of Urology under the presidency of Guyon, discussed this form of hematuria, and were unanimously of the opinion that the terms were unnecessary and obstructive—mere confessions of ignorance. Klemperer is one of the few authorities who hold to the angioneurotic theory. Fortunately these cases are now, since the introduction of the cystoscope and ureteral catheterization, becoming very rare. Fenwick† has shown that in some of these cases at least, the bleeding emanates from the renal papillæ. It is fair to assume that many of them have a definite, though undiscovered, anatomical cause. But we are not yet prepared to say there is nothing in the angioneurotic theory. In this rather tedious review of an elementary subject, my sole purpose has been to impress upon my hearers, the urgent necessity of a painstaking analytical investigation of their cases showing pyuria and hematuria.

Upon one's ability to discover the source of these pathological constituents of urine, will corresponding success in treatment follow; or, as someone has said, "He who diagnoses well, treats well."

NEURASTHENIA.

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NEURASTHENIA as a definite form of nervous disease was first described by Beard, of New York, in the *Boston Medical and Surgical Journal*, 1869, followed by a paper read before the New York Academy of Medicine in 1878; he further elaborated the subject in a work entitled "Nervous Exhaustion," which reached a second edition in 1890; later he published "Sexual Neurasthenia," where he attempts to place a number of different nervous troubles under the same heading, including hypochondria, hysteria and sexual perversion.

Neurasthenia is a disease most often found in hospitals in its uncomplicated form, but often accompanied by other morbid conditions which mask its symptoms, rendering diagnosis difficult. During the writer's connection with Mount Hope Retreat and also in private practice he has had the opportunity of observing a considerable number of cases, and he attempts in this paper to give a symptomatic picture of the disease for the benefit of the general practitioner, who is usually the first consulted by the patient. The treatment by the general practitioner is usually entirely symptomatic, consisting of bromides in increasing doses with the addition of hypnotics, the various coal-tar products and headache powders, with little or no effort to treat the underlying condition; the patient becomes worse or fails to improve, finally consulting a specialist or entering an institution.

These patients usually come from the city, though, perhaps, if the statistics of the relation of cases to the population from which they are drawn were obtainable, it would be found that there was little or no difference; many of the cases I have met with being farmers and country business men. In practically all cases, however, the disease affects those who work with their brains, and it is very rare indeed to observe it in the laboring classes, suggesting that want of physical exercise is a factor in its etiology. The disease appears in adult life, rarely in youth and probably never in children. In my experience there has been probably a greater proportion of cases among women than men, but this probably is incidental to the nature of the practice.

There are certain principal symptoms, or, better, stigmata, of the disease, some psychical, some physical,—a knowledge of which is necessary for a diagnosis.

Headache exists in about 90 per cent. of all cases, which has the peculiarity that it is at its worst in the morning, gradually decreasing as the day advances and disappearing at night, only to recommence the following morning; during the day there are usually slight ameliorations of the pain, especially at meal time, increasing again as digestion advances. The pain is a heavy, dull, numb feeling in the head, with perhaps occasional lancinating pains or paroxysms of intense agony. The decrease of the pain at meal time is of short duration, when digestion is at its height the pain is increased, accompanied by flushings of the face, giving the appearance of plethora, with a feeling of intense malaise and depression. Toward evening the headache declines; usually there is a severe attack after the evening meal, after which it may disappear entirely during the night, as long as the patient keeps the recumbent position; but on standing up it returns and in the morning commences again.

The headache is either bitemporal, surrounding the head like a vice, or more often it is in the occipital region, the whole of the back of the head to the nape of the neck having the sensation of a grinding or crackling, which may be so intense that the patient imagines he can feel the sensation with his hand. At other times the whole head is affected; the skull may feel too small for its contents; at others there is a sensation as if the brain were boiling; the forehead is flushed, giving a sensation of heat to the hand, the body temperature being normal, or nearly so.

* British Medical Journal, June 15, 1901.
† British Medical Journal, Feb. 3, 1900.

Though the headache ceases or lessens at night, the patient suffers from insomnia, which may be of two kinds. In one he falls into profound heavy sleep immediately on lying down, only to awake in two or three hours to spend the rest of the night in tossing about till morning, the victim of a thousand miserable sensations, turning from side to side from a feeling of discomfort, especially in the lower limbs, of shooting pains, prickling, stinging and general teasing sensations, followed by a feeling of numbness which is almost unbearable. He may doze for a short while at last, but is compelled to rise tired and unrefreshed, the headache returning as soon as he puts his feet to the floor. Should he doze for a few minutes the arm under the body becomes numb, paralyzed, dead; in a minute or two the sensation disappears, but the condition is renewed and he takes all sorts of uncomfortable positions to avoid its repetition, effectually dispelling any tendency to sleep; at other times the lower limbs appear to have a sort of shock or sudden contraction which is very disquieting. Other cases complain of a feeling of emptiness in the epigastrium, with gurglings in the intestines, more particularly marked toward morning. Urination is often frequent during the night, suggesting Bright's disease or diabetes, but there is no sugar in the urine and only traces of nucleo albumin are present. Under the above conditions sleep is evidently impossible, though toward morning he may pass into a doze or sleep for a short time, but is shortly compelled to rise as tired and miserable as when he went to bed.

The other form of insomnia differs from the above in that immediately after the evening meal he has apparently an almost uncontrollable desire to sleep, but once in bed he is wide awake, the entire night being spent in short snatches of semi-unconsciousness, he hears the clock strike every hour; the least noise seems to his tired senses magnified one hundredfold; the pressure of the bedclothes irritates him and he passes the whole night without any sleep which is of benefit to him. It is evident that the patient can have no desire for his daily vocations, the headache commencing as soon as he gets up and the day of misery and *ennui* repeats itself. Another peculiarity is that as the patient is dropping off to sleep he awakes with a sudden start and his rest is disturbed by "night terrors," delusions, and a feeling of dread.

Another symptom is a vertigo presenting special characteristics. It is not like the vertigo of Ménière's disease where there is a true loss of equilibrium and the patient falls—it is a sensation of emptiness of the head, accompanied by a weakness of the limbs; a cloud comes before the eyes, all appears gray with black moving spots, objects near and far are confused and seem to be on the same plane. These phenomena resemble accommodative asthenopia, which often coexists with vertigo; examination of the eye reveals little or nothing; the pupils may be dilated, usually equal in size, reacting a little slowly to light and the retina is normal. These attacks of vertigo are most apt to occur on the patient rising from the recumbent or sitting, to the erect position, or when any emotion is evoked, however slight. A form of agoraphobia may exist, the patient being afraid to walk along the street or to pass through a door, for fear the walls will fall upon him or an open space may produce intense sensations of fear. The vertigo shows itself most often in the morning, and like other symptoms it is less frequent during and immediately after meals, generally disappearing in the evening and never occurring in bed.

In some cases there are pains in the spinal column, either in the cervical or at the junction of the lumbar sacral vertibræ. The pains radiate in the former case toward the shoulders and arms, causing a sensation of weight and oppression; in the latter case the same feelings are experienced in the lower limbs. The patient locates the pain in the column exactly but examination reveals nothing, except perhaps a slight hyperasthesia; there may be sensations of feebleness and numbness suggesting paraplegia, but the sphincters are normal; the reflexes may be normal and equal on both sides, though exaggeration is not infrequent. The headaches and vertigo suggest organic brain trouble, the pains and symptoms from the cord suggest spinal trouble, and mental depression, insanity; and careful analysis of the clinical symptoms is necessary to form a correct diagnosis.

The stomach and intestines are also more or less affected in neurasthenia, suggesting auto-intoxication; there are a slowness and difficulty of digestion; on rising the tongue is coated, the mouth sticky, and the appetite poor; during eating and immediately after, the painful sensations are milder or they may disappear altogether—the general condition improving. A light breakfast is usually well digested, but it is necessary that another light meal be taken in an hour or two, or the patient will suffer. The condition of the stomach is one of continuous secretion of hydrochloric acid with a want of motility; it is therefore necessary that the neurasthenic be fed frequently at short intervals and on no account should he eat a large meal; although the hydrochloric acid is being continuously secreted in small quantities the glands are in a state of fatigue, and are therefore unable to respond to a demand for the excess of hydrochloric acid necessary for a large meal. After a test-meal the analyses give various results; usually the amount of free and loosely combined hydrochloric acid is normal or slightly low, though at times there is a marked hyperchlorhydria. The test-meal is never a very satisfactory method of diagnosis in a nervous patient. In the first place, the Salzer meal is not very appetizing and is more than the patient cares to eat, consequently the "psychic juice" is not secreted in full amount. The Ewald breakfast is not appetizing, especially with American bread; in Germany the "Brödchen" is much more pleasant to the palate, which may have something to do with the larger amount of free hydro-

chloric normally found in that country. To give a nervous patient a test-meal at 8 A.M., another at noon, and to draw his stomach at 1 P.M., during which time he is on a mental rack as to the terrible ordeal he is about to go through with the tube, is not calculated to produce normal digestion and give accurate results.

Judging from the urinary analyses in these cases one would consider that there was a marked hyperchlorhydria, and I believe that there are cases where not only the secretion is continuous to a greater or less degree, but that on taking a full meal there is a hypersecretion of hydrochloric acid which prevents proper peptic, and also retards pancreatic, digestion. In many cases the digestive symptoms are secondary to the nervous trouble, though careful attention to the diet and digestive organs mitigates the suffering, especially the insomnia. It is evident that no disease can be treated successfully unless the nutrition is normal, the absorption of partially digested proteids or imperfectly converted sugars cannot but be detrimental to the general condition. Tympanites and acid eructations follow a heavy meal consequent on the general atony of both the stomach and intestines, producing a certain amount of auto-intoxication, but the pathologic condition of the nervous system is often primary, the digestive symptoms disappearing as the patient improves. The intestinal troubles consist usually in obstinate constipation with occasional attacks of diarrhea in which, on microscopic examination, there will be found blocks of mucus, evidence of membranous enteritis, a very common accompaniment of neurasthenia. In women there is often a mucomembranous dysmenorrhea. The general condition of the patient suffers, he loses flesh rapidly, though in some cases the "embonpoint" is preserved.

The urine is clear, limpid and large in quantity, suggesting hysteria, though at times it may be less abundant and dark in color. The urea nitrogen is low, the ammonia and uric acid normal, but the residual nitrogen is markedly excessive, and there is usually a marked phosphoturia; the proportion of chlorides to nitrogen is below normal, while the carbon nitrogen factor is normal or low. Indol and ethereal sulphates may be high or normal, depending on the condition of the bowels, but the neutral sulphur is invariably high.

The heart suffers with the other organs; the maximum pressure is low in proportion to the mean and extremely variable. Under normal conditions the taking of food raises the mean pressure, but in neurasthenia so marked is the arteriolar contraction of the abdominal vessels, that an intense flushing of the face takes place, with a feeling of congestion of the brain and a beating of the cephalic arteries. At other times, owing to the relaxation of the abdominal vessels, there is an accumulation of blood in the abdomen causing a general sensation of cold; the hands and feet being, however, generally cold. To a great extent the vertigos are due to the same cause. On taking the erect position from the recumbent, there is under normal conditions, a rise of arterial mean pressure of about 10 mm. Hg. and a slight increase of the pulse rate; in the neurasthenic on the contrary, there is a fall of mean blood pressure on taking the erect position, of from 20 to 30 mm. Hg. and a very marked compensatory increase of the heart rate, which is insufficient to overcome the want or arteriolar contraction, and an anemia of the brain is the consequence, producing a vertigo for a few minutes till the arteriolar contraction takes place, when the vertigo passes off; in other words, the compensatory vasoconstrictor mechanism necessary for the erect position is deficient, reacting slowly to the stimulation of standing up.

The physiology of the blood pressure has been but recently investigated, since Leonard Hill and Bernard introduced their sphygmometer, it being the only one which will record both the maximum and mean pressures; the Riva-Rocci instrument usually used in this country is of little use clinically, as it only records the maximum pressure, and owing to its depending upon the sense of touch of the operator, the results are usually too low. Oliver and Hill have shown that any mental work or emotion raises the mean blood pressure, and it follows that continuous mental strain must produce a strain upon the vasomotor nerves, which results in their enfeeblement; and further, Sir William Broadbent has shown that continued mental strain produces a dilatation of the heart, the result of the continuous increased back pressure upon the ventricle. The effect of mental strain in the causation of neurasthenia will be referred to later, but enough has been said to show that primarily the neurasthenic condition is the result of a decreased sensibility or accommodative power of the vasomotor system.

Angina of a special type is common in neurasthenia; there is little precordial anxiety, nor are there painful radiations to the left arm; the thorax seems as though it were held in a vise; the pulse instead of being, as in true angina, small, thready and intermittent, is full and regular; the heart-beats are strong, even violent; the sounds distinct. Sometimes there is hyperasthesia in the precordial region resembling somewhat the condition found in hysteria, though the attacks of this angina are severe there is no danger of collapse. There is also a shortness of breath, oxygen hunger, the patient sighing frequently.

The functions of the genital organs are depressed, loss of power and desire are frequent causes of complaint. Coitus may be possible, but is followed by a feeling of intense lassitude with increase of pain in the lumbar sacral region. More rarely the patient is troubled with nocturnal erections which coitus does not relieve, sometimes accompanied by emissions, increasing the weakness and mental depression. At other times coitus is incomplete, ejaculation following almost immediately an erection. These symptoms suggest disease of the cord. In other cases, each defecation if followed by an emission of a thin fluid containing spermatozoa; in this condition

the prostate and vesicles should be examined for abscess and the discharge stained for gonococci. The writer treated a case which appeared to be a typical case of neurasthenia without headache, which recovered completely on the treatment of the prostate for a gonorrheal abscess; the spermatorrhea is due to atony of the seminal vesicles and can be cured by cold douches in the rectum. Cases with the above symptoms have been classed as sexual neurasthenia, melancholia being a marked psychic symptom.

Another symptom, which, however, is rarely present, is a certain amount of tremor usually slight, vibratory, affecting at the same time both the upper and lower extremities; the tongue is very rarely affected, but there may be a tremor of the lips causing difficulties of speech which suggest paresis.

The mental condition presents a general depression of the faculties without perversion; usually the mental activity is increased, sometimes decreased; intellectual work becomes difficult and above all the inability of the patient to make a decision on any matter however trivial; the memory, though slow, is intact and the judgment normal. With an effort, the patient is usually able to recover his mental aptitude completely, differing in this from the true melancholic in whom there are mental perversions, and from the paretic who has more or less lost control of his ideas. The neurasthenic will describe his mental condition exactly and the psychic depression from which he suffers without any impossibilities, exaggerations or delusions, with the exception that he has an exaggerated view of the severity of his case, with the idea that he is going insane, and that he will never recover. Restlessness is often a marked feature, the patient being unable to remain in one position or to sit still for but a minute or two at a time. Irritability of temper in some cases is very marked, the patient breaking out into uncontrollable fits of temper on slight provocation, perhaps swearing and breaking the furniture, resembling acute mania. Timidity may be a very marked symptom.

Constitutional neurasthenia is another form of the disease, according to Charcot and other writers, but the symptoms are the same, the subjects being those who are either congenitally or from some acquired condition less able to bear the mental and nervous strain of the struggle for existence, and who, therefore, more easily succumb to the strain of life. I do not believe that the pressure of modern civilization is greater than in former years; if more work is accomplished, more responsibilities carried by the individual than formerly, it must be remembered that the advantages of modern methods and appliances render such efforts more easy; and besides if the working strain is greater, the opportunities for diversion and recreation are also greater than formerly. There is perhaps one condition in modern life which tends to produce nervous and physical breakdown, and that is, that to-day the large majority of business men take but little exercise. Our forefathers either had to walk or ride horseback or drive; in the latter case the time consumed on a journey was longer than in these days of express trains and was to a great extent a rest from business cares, combined with a change of scene and environment which could not but be beneficial to the overworked man. We however, see men to-day who have led active business lives for half a century or more, hale and hearty at eighty years of age, and again we see men whose responsibilities have been light and whose anxieties have been few, succumb to neurasthenia.

In the so-called constitutional neurasthenia the clinical history reveals but little toward the etiology of the case; as an example, a young man of thirty comes to the office with many of the symptoms detailed above; in his history is neither hereditary alcoholism nor syphilis—those ever-ready refuges for the perplexed diagnostician; he may never have had any severe illness, and possibly the ordinary diseases of childhood have been so mild as to have almost escaped his recollection; he is possessed of a private income which renders him free from the anxieties of working for a living, and is perhaps working in some office more to employ his time than for ordinary pecuniary gain.

There is one point, however, in many of these cases which shows the cause of the neurasthenic condition, viz., that puberty was delayed, that he ceased to grow at the age of about sixteen or seventeen; that he was backward mentally, not perhaps as calculated from the standard of the school, but rather in his psychic development, associating with boys younger than himself, finding amusement in boyish or childish games. At about eighteen or nineteen the average boy becomes a man; he puts away childish and boyish things; but in this case he has remained a boy till perhaps twenty or even longer. In women, in whom this form of neurasthenia is more common than in men, menstruation may not have commenced till eighteen or nineteen years of age, and always been more or less scanty and irregular. The genitalia of the male are often small and poorly developed, and there has never been much sexual desire. Such cases are not true neurasthenia; they may belong to the class of cases known to the French as "type Loraine," or they may be cases of infantilism where the thyroid has failed to develop fully or has atrophied early; or they may be cases of anangioplasia.* The mean blood pressure is high; the arteries feel hard and small, suggesting arteriosclerosis, the heart rapid and forcible. These cases do not belong to neurasthenia properly speaking; their etiology being very different and consequently their treatment also. The prognosis of perfect recovery is, however, not good; the symptoms may be ameliorated but the patient will probably spend the rest of his life under the care of a physician, dying at a comparatively early age from some inter-

* See "The Thyroid and Parathyroid Glands." Williams Wilkins & Co., Baltimore.

current disease, owing to the reduced resistive power of the system.

True neurasthenia is found among those men who lead strenuous lives, having great responsibilities and anxieties without taking a sufficient amount of recreation and physical exercise, combined with irregular and bolted meals. The importance of the digestive apparatus cannot be overestimated, its complications render it liable to get out of order; consider that the saliva, the pepsin, hydrochloric acid, enterokinase, pancreatic juice with its three ferments, the bile, the succus entericus and other ferments, which are as yet but imperfectly understood, have all to secrete sufficiently and in proportion in order to convert the food into the condition in which it is most easily absorbed and assimilated, and that if any links in this chain are omitted, the nutrition will suffer, not only from decreased assimilation, but also from the absorption of imperfectly digested food products which must act as poisons to the system.

The etiology of neurasthenia can be classed under four heads: (1) Mental strain; (2) disturbances of digestion, malnutrition and auto-intoxication; (3) toxemia from infectious diseases; (4) traumatism and shock.

It is a matter of general knowledge that emotions affect the digestion, anxiety and grief cause loss of appetite, coated tongue, constipation, etc., producing malnutrition and auto-intoxication, which in their turn act upon the already overstrained nervous system. In many cases of neurasthenia the digestive disturbances antedate the nervous symptoms; in others the nervous symptoms are the first to appear, the one reacting upon the other in a vicious cycle.

Toxemia from grip, scarlet fever, diphtheria and other diseases sometimes leaves the patient a nervous wreck. Traumatism and shock are a cause of the same condition as seen in those nervous troubles dating from railway accidents, etc.

It is apparently the vasomotor nervous system which is principally affected. All emotions act upon this system of nerves. Leonard Hill has shown how mental work raises the mean blood pressure 30 to 40 mm. Hg.; if the nervous mechanism is continually under a severe strain for months or years, it is evident that it will become fatigued and refuse to react normally to stimuli. I have observed that there is a reversed postural blood pressure in neurasthenics, under normal conditions on taking the erect position from the recumbent, the mean blood pressure rises from 10 to 30 mm. Hg, while in neurasthenics, under the same conditions, there is a marked fall, sometimes as much as 40 mm. Hg, with a great increase in the pulse rate, showing that the vasomotor system fails to respond to normal stimuli. In neurasthenia the blood pressure is variable and erratic, falling suddenly when it would normally rise producing vertigo; at other times rising excessively, causing flushing of the head and neck, while the hands and feet may be cold. The vasomotor system regulates the blood supply to the various organs and it seems probable that many of the nervous symptoms classified as separate diseases are due to a defect of the vasomotor nerves controlling the blood supply to some particular portion of the nervous system, the variations in the symptoms depending upon the part affected.

There is yet another etiological factor which is of great importance from a therapeutic standpoint, viz., a gouty constitution. In these cases the urine is intensely acid and the carbon nitrogen factor very low. The most marked symptom is irritability of temper, sometimes so great as to resemble an attack of acute mania.

There is no specific treatment in neurasthenia. Removal of the cause of worry, if possible, increased physical exercise, anything to interest the patient in some form of recreation, attention to the digestion, to the removal of the toxins from the system and to the building up of the whole system in every possible way. Drugs, such as the bromides, the coal-tar derivatives, etc., should be used as little as possible on account of their effect upon the assimilation, the circulation and the blood; the coal-tar preparations are particularly contraindicated on account of their destructive action on the red corpuscles. Bromides depress the heart and the vasomotor system and should be used with caution. The difficulties of the physician are much increased by the intractability of the patient; he will refuse to leave his business or perhaps he is unable to do so; he will not take his treatment regularly, will absent himself from the office for a week or two at a time, returning perhaps to scold the physician because he is no better, or perhaps he will seek a new doctor every month; it is no uncommon occurrence to have a patient produce a pocketful of prescriptions from different physicians, upon all of which he will dilate with a curious mixture of astuteness and perverted knowledge, which would be amusing if it were not tedious. The first duty of the physician is to gain the patient's confidence, and by firmness and sympathy hold him to his treatment, a task often of great difficulty, requiring great tact and patience.

THE THEATRICAL PROFESSION AS A FACTOR IN THE DISSEMINATION OF DISEASE.

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MUCH has been written during recent years concerning the various factors that exert an influence in the dissemination of disease but, as yet, nothing has been produced to show any relationship between the theatrical profession and certain forms of disease. In order to command attention for this subject one has but to ask consideration for two facts; first, the already undisputed fact of the causation of diseases by bacteria, and second, the migratory tendencies of Thespians as a class.

While the relation between bacteriology and disease is always of great interest its discussion may be conveniently omitted from this disserta-

tion on account of its extensive scope. It must, however, be remembered that while special bacteria may be found associated with a number of diseases, there is a marked inability to detect specific microorganisms in those that are most contagious, such as syphilis and smallpox, and it is the purpose of this article to bring out the clinical features of some of these affections as modified by the mode of life peculiar to the actor.

The habits and mode of life of those who follow the stage for a livelihood are subject to very great variations. For convenience, actors may be considered as successful and non-successful. Success in this profession may be considered from the standpoint of money or of art. Those whose success is monetary in character are least likely to diffuse morbid conditions throughout a community. Such individuals are able to procure all the comforts and accommodation possible, both in the large and small cities and towns; and in the event of illness, temporary or permanent, are also able to procure the best medical attention. But even with these advantages, the recognition and prompt treatment of certain affections are unavoidably postponed on account of the exigencies of the professional life.

Considering those successful as regards the theatrical art, the question becomes more intricate. The monetary success of these individuals is, with but few exceptions, periodic in character, all illness is cheerfully disregarded unless it had a direct influence upon the display of their talents and during the period of "hard times" everything is disregarded out of necessity.

These two classes should be instructed as regards their bodily conditions for their own sakes, while the other class yet to be considered should be the subject of constant attention on account of the influence they exert upon society in general.

The unsuccessful class is made up of failures as regards art and finance and constitute by far the large part of the theatrical profession. From the very beginning of their career, the members of this class often possess tendencies detrimental to themselves, their profession, and to society. Cleanliness as practised by other members of society is a dark mystery to many of these individuals. This mystery is allowed to deepen by lack of accommodations in the music halls, cheap theatres, boarding houses, etc., in which most of their lives are spent. Coupled with this are alcoholism and immorality, both of which tend to exaggerate the original unhygienic tendencies. While the effects of these influences are most marked in this class, they are by no means limited to it but permeate the upper strata, becoming greatly modified by the three great factors, intelligence, education and financial success.

The various sources from which the unsuccessful class is recruited differ but little in their several aspects from the positions they occupy in the theatrical profession so that in these cases, heredity and environment exert but a negative influence in the betterment of these individuals as a class. To dilate further upon this subject would be superfluous as their characteristics and tendencies are well-known to all.

The disease to which the various members of this profession are subject next claim our attention and at a glance it may be seen that these are the same in both cases, modified of course by the varying financial conditions from time to time. These affections may be conveniently considered as those that are regarded and those that are disregarded. The abnormal conditions that are regarded with alarm are usually those referable to the nose and the throat and the reason for this is obvious, considering the effect such conditions have upon the voice and therefore upon the patient's vocation. These conditions always receive prompt and efficient treatment from the best specialists in the various towns and cities, but after that, the physical condition is entirely disregarded.

The threatical profession is extremely large and its members occupy a considerable portion of their time in the performance of near work by their eyes and subsequent exposure to intense light, but how many of its members take the time to have their eyes properly examined and placed at rest and yet eye-strain is a well-recognized condition. Apart from this, the effect of cosmetics is seldom seriously considered, as the members of this profession may be frequently seen upon the street and in public places, with the same paint, powder, etc., as upon the stage. The pores of the skin, the innumerable openings of the ducts of the glands of the integument are forever closed up by these foreign substances and excretion is retarded to a corresponding degree.

The entire skin surface is seldom considered to the height of its importance. Full bathing is practised frequently by the upper class, but among the lower class, in addition to the not uncommon natural aversion to soap and water, there is frequently an inability to procure this priceless luxury. But this does not lessen the importance of its necessity. We are all familiar with the manner in which most actors and actresses die. The newspapers always attribute it to immorality and alcoholism, but considering other branches of society we shall find an equal degree of immorality and alcoholism but a longer average term of life due undoubtedly to the observance of the every-day rules of personal hygiene known to all and considered by all except the theatrical profession. Looking over the lives of those members who have survived to rather old age, this is proven with great force.

The skin, as is well known, takes part to a large extent in the excretion of the waste products of the body and the blocking up of the avenues of escape in this structure by cosmetics, sweat, sunburn, etc., can have but one effect, namely to increase the work of the other organs of excretion.

The infectious fevers, such as smallpox and diphtheria, occurring in these individuals probably receives greater attention than from other classes

of society. Vaccination is well understood and accepted more extensively than by the outside public. With diphtheria, the recognition and treatment are prompt for the reasons already stated. Scarlet fever is comparatively infrequent among the members of this profession but the possibility of large epidemics should always be taken into consideration. Typhoid fever, on the hand, is rather common. Hard work, improper hygiene, dissipation, poverty, etc., all aid in its production and unless the patients can be removed to a hospital or other quarter appropriate for their care, the diffusion of the disease is certain. The mild types are particularly dangerous in this respect on account of the ability of the patients to follow their respective troupes from place to place.

More frequent than the infectious fevers in this class are the parasitic disease of the skin. Most of these are secondary to lack of bathing, wearing of unclean and contaminated clothing, and exposure to variations in the dermal temperature. Perhaps the most common affection of the skin encountered in travelers and others whose place of residence is continually changing is scabies or itch. This is essentially an animal parasite disease and is acquired by contact. While not attended by danger to life the affection is extremely aggravating and shows no tendency to undergo spontaneous involution. Medical works describe it as a disease induced by the presence of a minute parasite, *Sarcoptes scabiei*, beneath the skin. The parasite burrows its way through the skin leaving its ova in its trail. This produces intense itching which is worse at night and causes the patient to scratch considerably, thereby producing a multiform eruption upon the skin-made up largely of scratchmarks, pustules, etc. It selects certain regions of the body by preference, namely those places where the skin is warm, moist and thin, such as the webs of the fingers, the wrist, the flexor surface of the elbows, the armpits, the female breasts, buttocks, shaft of penis, inner side of thighs, legs and ankles, and between the toes. The itch-mite and its burrows may be detected in any of these situations and is considered diagnostic. In a typical case it is not difficult to detect all these characteristics but typical cases seem to restrict themselves to the dirtiest of people. However, there is very little to prevent these individuals from infecting others, since the affection respects no class and usually those with typical cases are outcasts and receive no attention from themselves or anyone else.

Mounting the scale, the condition undergoes many variations depending on the tendencies of those affected. For instance, in those who subject their hands, arms, and forearms to repeated washings, the disease may be largely eradicated from these surfaces or at least the itch-mite and its burrows may be entirely removed from these situations yet the patient suffers from intolerable nocturnal itchings and continues to infect those about him. This leads to failure of recognition of the condition by the average practitioner of medicine on account of the absence of the burrow which he has been taught to regard as the sole distinguishing feature of the disease. As a further result these atypical cases are ascribed to the uric acid diathesis, etc., and treated accordingly, but without success. It should never be forgotten that the face is free in scabies except occasionally in nursing infants.

The possibility of dissemination of this disease is enormous when the constant changing of costumes, and the huddling together in railway trains, cheap hotels, boarding houses, etc., are considered. Not only do members of the same troupe become infected, but others following and occupying the same apartments (often without a change of bed-linen) become the subjects of this affection, differing according to the habits of the individual, but possessing in all the one prominent feature of intense itching at night. Obviously the underclothing and bed-clothing should be boiled in all these cases in addition to the medical treatment. The affection is also acquired during sexual intercourse, but this is ignored almost universally, and in mild localized forms it may be confused with more serious affections.

Another condition to which the theatrical profession is exposed is that of pediculosis of lousiness. When we consider the number of young women with long hair that go to make up the larger part of the numerous traveling troupes and the facilities they have for keeping the head in a perfect condition, the possibilities are enormous. *Pediculosis capitis* is therefore extremely frequent and is made more so by the various headwear employed and the means provided for its transportation.

Luckily, a number of these women bleach their hair and, unknowingly, antisepticize their heads. The prominent constituent of most hair-bleaches is peroxide of hydrogen and this exercises a solvent effect upon the gelatinous capsules of the ova or nits attached to the individual hairs. Apart from the intolerable itching and discomfort attendant upon pediculosis in all forms, there is exerted a deleterious influence upon the general health and most such individuals become pale and anemic; the hair becomes lusterless; and the adjacent glands enlarge and sometimes suppurate.

Pediculosis corporis demands attention, since the presence of an individual so affected may give rise to endless trouble and annoyance through the infection of the clothes of other members of the same troupe as the parasite lays its ova in the seams of the clothing and hatches them out under the influence of heat. This explains the occurrence of itching in this affection only when the clothes are worn and directly after removing them.

Itching is alike in all diseases of the skin and the scratching induced by one is no different from that produced by another so that these individuals present themselves with lesions upon the skin that differ, apparently at least, in no way from those of scabies or itch. Physicians often refuse to entertain the thought of pediculosis in cleanly individuals and make a hasty diagnosis of eczema

but herein lies the danger as eczema is non-contagious. To the experienced observer, however, the difference is apparent; the itching and scratching is almost invariably situated on the outer side of the arms, thighs, and legs, the backs of the shoulders, and areas corresponding to the seams of the clothing. The hands, feet and face are free and there are no burrows as in scabies or primary lesions as in eczema.

Pediculosis pubis, commonly known as "crabs" occurs with great frequency in the pubic region and is usually associated with unclean sexual intercourse, but it is not always acquired in this manner. The clothing may be the medium of contagion in this as in other diseases. As is also well known these parasites may be found in the armpits, eyebrows and eyelashes, giving rise to inflammations of the skin, the true origin of which may be overlooked by the casual observer. The common practice of rubbing in blue ointment in this affection is to be deprecated as in careless hands its use may lead to dermatitis or ptyalism and equally beneficial results may be obtained by less harsh modes of treatment.

The vegetable parasitic diseases of the skin may be dismissed with passing mention, for while they are contagious, they produce little or no disturbance. Their greatest importance lies in ease with which they may be confounded with more serious affections. For instance, the macular eruption of syphilis may resemble *Tinea versicolor* or choasma and again the circinate lesions of late secondary syphilis may be considered as ringworm. The microscope serves to render the diagnosis certain in these cases.

Passing from the parasitic affection of the skin, our attention is next directed toward venereal diseases, the contagiousness and manner of acquisition of which are common knowledge. These affections, however, are rendered more virulent and their contagiousness increased by the mode of life of the professional actor, particularly those of the lower class and appear in aberrant forms that elude detection by the patient and also occasionally by the physician.

Syphilis is a frequent affection in this class of individuals and while it is usually acquired during sexual intercourse, it may arise from contact in other ways. The chancre or initial lesion may occur in situations in which it is difficult to detect although it is usually situated on the external genitals. The appearance of the secondary eruption, especially the roseola, may remain undiscovered and the disease pass rapidly into the tertiary stage. The mucous patch often remains alone for a considerable period and when we consider its location in the mucous membrane of the mouth, rectum, and genitals, the ease with which the disease is disseminated becomes at once apparent. Then, again, the patient disfigures these lesions by the application of caustics and other irritants by the advice of friends or charlatans so that even a skilled physician may be deceived. The moist papules that occur between the folds of the buttocks in syphilis usually remain untouched by reason of their not being exposed to view and are especially characteristic.

The tertiary lesions of syphilis, being looked upon as non-contagious by the medical profession, may be disregarded as far as dissemination of disease is concerned but should receive proper attention for the patient's sake. These lesions are usually seen in the more successful members of the theatrical profession because these individuals manage to survive the many vicissitudes of their calling. The gumma, when external, is easily recognized but the tubercular and papulotubercular lesions are often confused with other affections of the skin and grave internal manifestations of the disease are allowed to occur. The tendency of the papulotubercular lesions to form incomplete rings should never be forgotten as it will often serve to render the diagnosis clear.

The treatment in these cases is often attended by great difficulty. As in all other syphilitic persons there is a tendency to discontinue treatment as soon as the lesions begin to disappear and herein lies the great danger. Medicine should always be taken for a period of two or three years, under the supervision of a physician. The ingestion of drugs during that period does not constitute the entire treatment; the patient should be seen by the physician from time to time and the treatment varied. In the event of the patient being unable to pay for treatment, he should be directed to the proper hospital or dispensary, but how many are so instructed? Most frequently they consult quacks, or drug store "doctors" and after four of five months' treatment depart, apparently cured, to return with some late lesion or die at a comparatively early age from internal lesions. In the meantime, how many individuals within and without the theatrical profession have acquired the disease?

Chancroids are probably less frequent than the previously described affection and on account of their easy recognition are promptly treated. By the laity nearly all lesions of the genitalia are considered as chancres and are almost invariably cauterized. In the event of the lesions being chancroids, the result is beneficial but if the lesion is a chancre, the treatment has been useless and harmful in that it served to mask the real condition.

Gonorrhea is probably the most frequent disease and its causes are obvious. The underpaid condition and immorality of the lower classes tend to propagate this affection with great vigor. Coupled with this is the lack of opportunities and, likewise, desire for personal cleanliness. Gonorrhea in women seems to last indefinitely, even when all the conditions are favorable for its eradication on account of the numerous folds and crypts of the genitalia in which the infection lodges. How much more so must this be in those who are deprived of the privilege of taking proper care of themselves either by reason of straitened financial circumstances or lack of proper accommodations.

The secretions from such individuals carry in-

fection and must certainly contaminate the clothing. While this may probably be the least potential factor in the dissemination of this disease, it should always be remembered. Gonorrheal ophthalmia, with its frightful sequences, should likewise never be forgotten when considering the possibilities attending the diffusion of this affection. While the sequences of gonorrhea are not directly pertinent to this subject it is difficult to dismiss it without alluding to the fact that sterility in both sexes is traceable in a large percentage of cases to it. Blindness in children in many cases and a large number of abdominal operations are also its results.

In conclusion it may be well to summarize the facts contained within this paper as follows:

1. That the theatrical profession is a factor of great importance in the dissemination of scabies, pediculosis, syphilis and gonorrhea, by reason of its peculiar sociological position.

2. That this influence is greater in traveling troupes than in companies located permanently in the large cities on account of the lack of accommodations and unhygienic conditions under which they live.

3. Living apart from the rest of the world as they do to a great extent they are deprived of the medical education which is becoming so popular with the rest of the laity.

4. Lack of time prevents the members of this profession from consulting able medical men in the large cities except when physically incapacitated and in consequence they fall into the hands of unscrupulous and ignorant physicians or charlatans.

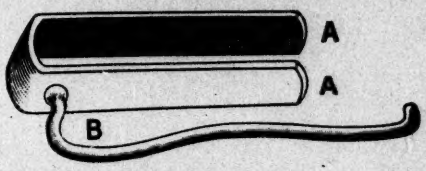
The relief for this series of evils is not easily produced. Probably the best means of preventing the spread of these affections would be by educating the members of this profession in the various dangers attending these conditions. While the first two parasitic affections are not dangerous the are extremely annoying and inconvenient and may be readily prevented and cured. Facilities for frequent bathing should be provided in the boarding-houses and the accommodations at the theaters should be such that the lesser lights could properly care for themselves. The manner in which the costumes are handled cannot be too harshly condemned. With the resurrection of old costumes for a revival of any kind, it is scarcely less than miraculous that all the diseases known to man are not equally distributed throughout the company. The sterilization of these costumes at least once would do no material damage and would greatly aid in lessening the danger of transmission of disease. Because an individual is upon the stage it does not necessarily follow that he or she should be entitled to the diseases already mentioned, and, further than this, the outside public should be protected, as it is said many succumb to the wiles of the "merry merry."

A MANUAL OF GENERAL PATHOLOGY. By Dr. Sidney Martin. 8vo, 502 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

INSTRUMENT HANGER FOR GLASS-SHELVED CASES.*

BY FREDERIC GRIFFITH, M.D.,
OF NEW YORK;
SURGEON, FELLOW OF THE NEW YORK ACADEMY OF MEDICINE.

LAST summer, during a visit to the private operating room of Mr. Hurry Fenwick, of London, I noticed in his instrument case a device which appeared to me would be a valuable addition to glass-shelved instrument cases. Forgetfulness upon my part prevented me from learning whether that gentleman was himself the inventor or not. The invention consists of a hook for suspending hemostats, scissors and many other like instruments which, when spread out over the shelves, occupy needless space. The copy of the model which I have made is of brass.



The straps (AA) are made from a strip of moderately springy metal seven-sixteenths of an inch wide and one-sixteenth in thickness. The length of the straps are 2¾ inches. The thickness of my shelves vary from three-eighths of an inch to seven-sixteenths of an inch and the spread of the straps has therefore been made with these measurements in view, so that moderately firm pressure is made above and below the shelf when in position. The hook (B) is made from wire three-sixteenths of an inch in diameter and 4½ inches long, being soldered to the strap as in illustration, after having been bent into shape. The implement is placed in position either from the front or back of the shelf.

49 East Sixty-fourth Street.

FORENSIC EYE ASPECTS OF TABES.

BY JAS. G. KIERNAN, M.D.,
OF CHICAGO.

WHILE neurologists and clinicians lay stress on the Argyll-Robertson pupil in the differential diagnosis of locomotor ataxia, yet it, like most pathognomonic symptoms, exceptionally occurs in many conditions. Differential diagnosis here as elsewhere is but too often a pedagogic performance unsuited for actual practice in which atypic not typic cases furnish the main necessity for diagnosis. The Argyll-Robertson type of reflex iridoplegia is associated with preserved accommodative mobility where the pupil is as immovable as a frozen opening, no matter how brightly illuminated or how deeply shaded, but contracts when the finger is approached to the nose. It has been temporarily noted after railroad accidents and other shocks, in cases in which no subsequent evidence of grave neuroses had occurred. In such cases it disappears. Excep-

*Presented at the Academy, Surgical Section, December 4, 1903.

tionally it has been found in alcoholism. It occurs early in locomotor ataxia, in paretic dementia, in constitutional syphilis. However, constitutional syphilis occurs quite frequently in which it is absent.

As W. L. Baum* has said, the frequency of the Argyll-Robertson pupil in constitutional syphilis is overrated. That it is frequent in parasyphiloses like paretic dementia and locomotor ataxia is undeniable. It is not to be received as a pathognomonic mark of these conditions, since it has been found in conditions like alcoholism and therefore may be a temporary expression of toxic states occurring during constitutional syphilis.

Some years ago I was called to testify in a suit against the Chicago Union Traction Company in which the driver of a mail wagon who had served as a soldier during the Civil War and had died of tuberculosis ere the case in litigation came to issue. His mail wagon had been struck by a car of the Chicago Union Traction Company and he was thrown from the seat. Fourteen days after this accident a diagnosis was made of locomotor ataxia, chargeable to traumatism, from an alleged condition of the pupils of which no clear description was given in the testimony. The diagnostician (a member of the family) who had observed the pupils under very disadvantageous conditions seemed to have some idea, as far as could be gathered from his testimony, that there was reflex iridoplegia of the Argyll-Robertson pupil type.

In response to a hypothetical case based on these facts I testified that in my judgment locomotor ataxia due to the traumatism did not exist and that diagnosis from the eye symptoms alone was not justifiable. Had locomotor ataxia existed there must have been symptoms of its presence before the alleged accident. It might even, from the destruction of coordination, have contributed to the accident since, unless in a remission, a tabetic has not the necessary coordinating power for a driver in city streets.

This issue was not raised by the company, albeit the declaration specified locomotor ataxia. In their defense to personal injury suits, corporations rarely plead a prior state of ill health on the part of the plaintiff. They accept the claim agent theory of pure fraud, thus raising an issue which any attorney with legal acumen is ready to meet despite jury and judge fixing, hospital staff packing and other corporation guards against the wicked wiles of alleged "ambulance chasers."

As the preponderance of proof element is always strongly in favor of the defendant corporation, as this preponderance extends to the issue of contributory negligence, and as any morbid condition where occupational ability is impaired makes for contributory negligence, the lobbyist is shown in the fact that he forces the defense of pure fraud in cases where occupational ability is damaged by ill health existing prior to the accident. The same evil influence appears in the denial of symptoms of permanent injury where such symptoms really exist but are chargeable to pre-accident morbid states.

* Illinois Medical Journal, 1901.

MEDICAL PROGRESS.

MEDICINE.

Transmission of Tuberculosis from Man to Cattle.—The present investigation is complementary to one published by the same authors several years ago on the relation of bovine tuberculosis to man. The work considers the following questions: (1) Whether the tubercle bacilli found in primary tuberculosis of the intestinal canal in man are ordinarily virulent for cattle, and (2) what is the frequency of primary tuberculous infection of the intestinal canal in man. Special attention has also been paid to the tracing of the infection through the agency of milk. The authors, J. FIBIGER and C. O. JENSEN (Berl. klin. Woch., Feb. 15, 1904) inoculated a series of calves with pure cultures of tubercle bacilli taken from patients afflicted with primary intestinal tuberculosis. Out of 10 cases, one-half produced only a weak reaction or were practically avirulent, the remainder resulted in a marked virulent reaction. In only one-half the cases therefore was a progressive tuberculous infection noted in the inoculated calves. It is also noteworthy that among five cases of apparently primary intestinal tuberculosis in children, four produced bacilli which were particularly virulent for cattle. Cases such as these, where no other modes of infection seem possible, where primary intestinal tuberculosis and bacilli virulent for cattle are present, and where the children have been fed on raw milk taken from uncontrolled herds, show conclusively the necessity for insisting on proper precautionary hygienic measures. Koch has said that extreme precautions against intestinal infection are unnecessary, as such cases are comparatively rare in man. The authors have made careful autopsy records in a series of 213 cases examined in a period of two years, and among 116, in which tuberculosis was the principal disease, 13 were afflicted with primary tuberculosis of the intestinal canal. This is approximately about 6 per cent. of all necropsies and about 11 per cent. of all those suffering from tuberculosis.

Bronchoscopy for Foreign Bodies in the Bronchi.—The diagnosis of these has largely rested on the history of swallowing some object and the subsequent cough, pain, and, rarely, localized physical signs, especially the signs of a simple small area of consolidation. Then came the radiograph, exceedingly useful where the foreign body is of metal or some other substance opaque to the rays, but of no value for a nut or a plumstone or anything that will not throw a sharp shadow. But now, according to LERMOYEZ and GUISEZ (La Presse Médicale, Dec. 23, 1903), one has in bronchoscopy an efficient method of absolutely detecting anything in any of the larger bronchi, for not only can the tube be passed to the tracheal bifurcation, but owing to the elasticity of the lungs may command all the larger bronchial ramifications. For treatment the medical man would resort to emetics, turning the patient head down and slapping his back, etc., and if these failed adopted an expectant attitude hoping that the object would be either coughed up or extruded through a fistula. Bourdillat found the death rate in spontaneous evacuation through a fistula to be 56 per cent. Surgeons by low tracheotomy reduced the mortality to 30 per cent., sometimes doing much harm by blindly

poking instruments into the bronchi. Transmediastinal bronchotomy has been tried with a death rate of 100 per cent. But the authors believe that bronchoscopy is harmless and easy to perform, and has the advantage that on making the diagnosis the foreign body can be at once easily extracted. They report the successful extraction of a nail, which could be located by X-rays, but which there seemed no possible way to get at.

Amœbæ Dysenteriæ.—Dysentery, according to the latest researches, would seem to be either *bacillary* due to bacteria, or *amebic* due to *Amœbæ dysenteriæ*, or *mixed*, that is, amebo-bacillary. The amebic are more common in hot than in temperate climates. The symptomatology of the two varieties is very similar, the differential diagnosis being made certain only by examination or cultures of the stools or serum reaction. But the amebic type tends to be chronic, is characterized by alternating exacerbations and periods of apparent health, and is sometimes complicated with abscess of the liver. The bacillary type, on the contrary, is sudden in its onset, runs an acute course, and recovery or death results in fifteen or twenty days. The amebic stools are generally alkaline, the bacillary neutral or acid. Anatomically the amebic lesions are confined to the large intestine, but the ulcerations are deep with overhanging edges. The bacillary lesions may appear not only throughout the whole large intestine, but also in the ileum, and the necrosis is superficial, never reaching the muscular layer. H. VINCENT (La Presse Médicale, Dec. 23, 1903) reports a case of amebic dysentery, which, after a serious course and various kinds of treatment, including antidysenteric serum, finally yielded to ipecac, calomel and opium. In studying the case the serum reaction was negative, and the stools were loaded with round, ovoid or pear-shaped amebæ of about four or five times the diameter of a red blood corpuscle. These amebæ held as inclusions red blood cells, cellular fragments and bacteria, thus distinguishing them from the non-pathogenic *Amœbæ intestinalis vulgaris*, and the pathogenic *Amœbæ coli mitis*, neither of which engulf red cells. The ameboid movements were free, the hyaline portion of the protoplasm alone forming pseudopods. The nucleus remained always of the same shape. At the temperature of the laboratory the movements were very marked for ten to thirty minutes, or in some cases for an hour. Then they gradually became slower and finally the parasite took a spherical shape with a prominent nucleus. At no time was a contractile vacuole seen. While living, the amebæ cling to the slide, but as soon as dead are washed off by the currents in the water. Shortly after the movements have ceased the differentiation between the ento- and the ectoplasm disappears and the parasites may be taken for epithelial cells. Contrary to the opinion of Ucke, the author has found in a number of cases, that the serous liquid on the surface of the stools contains amebæ in almost as great numbers as the mucus or blood, and that they are more motile. Urine inhibits the movements. To observe these the cover-glass must be lightly applied, and motion may be stimulated by lightly tapping the cover-glass with a fine wire or by brusquely alternating light and shadow. Following a dose of calomel, the stool contained many less hematophagic amebæ. They were mostly smaller (20 μ), and motionless, and on the third or fourth day a great many of them had no nucleus, their protoplasm was either hyaline or uniformly turbid, and they were spherical with intensified outline. A few of them had a double wall, the encysted form. Fixation by any of the common fixing reagents was not followed by successful staining (the amebæ stain better when hardened in the tissues), so a drop of aqueous methylene blue was placed on the living organisms, while all the other elements of the stool are stained blue, the amebæ remain uncolored and prominent. After about ten minutes they take on a spherical form, but soon throw out pseudopodia which keep up a constant motion. After six or eight minutes the pseudopodia cease and begin to imbibe the color, which attacks first the ingested cells, débris and bacteria. After ten minutes more the nucleus becomes colored and death ensues, and then the whole organism takes the stain. By this same method, the effect of other agents was tried. Silver nitrate, osmic acid and mercuric bichloride were followed by rapid death. Potassium permanganate is less active. Tartaric, citric and oxalic acids immobilize and soon kill; tannic acid is very active. Picric acid is mild, and boric acid and weak alkaline solutions have no effect. But of all the substance tried, the most certain and most energetic was the neutral hydrochlorate of quinine. The amebæ retracted instantly, seemed to disappear, then became clumped and unrecognizable. This salt would seem therefore to be very useful in the treatment of dysentery, while methylene blue, which is so much used, is one of the least efficient remedies.

SURGERY.

Treatment of Cervical Adenitis.—One of the most important points in the treatment of this condition is considered by F. S. BULKELEY (Am. Med., Feb. 27, 1904) to the care in avoiding or minimizing the amount of scar. The method which is usually mentioned plans the incision to take advantage of the natural skin creases. The writer thinks that in many cases it is possible to go still further. He divides the cases into three classes: (1) Cases in which the severity of the symptoms or the location of the infection is a menace to life and active interference is called for; (2) tuberculous glands; (3) where immediate radical interference is not demanded. The first class of cases occur relatively seldom and the question of a secondary scar becomes of secondary importance. In the case of tuberculous glands early treatment is of the greatest importance, and he recommends radical excision where improvement does not soon follow medical treatment. He emphasizes particularly the treatment of the third class of cases. The condition of the channels which they drain should be carefully looked after. Where suppuration has taken place, he suggests aspiration of the pus with the subsequent injection of antiseptics, or the use of a seton. For injection a solution of dioxide of hydrogen (50 per cent.) with or without the addition of iodine was followed by the best results. Where this is too painful or cannot be done, a cotton or silk seton may be used and the thread moved several times daily. Drainage may be hastened by the application of a hot poultice. Neither of these methods should be resorted to in the case of deep cervical glands.

Deceptive Abdominal Signs.—Our knowledge of the indications for operation, while vastly improved, are as yet of infantile development. A. H. TUBBY (Brit. Med. Jour., Feb. 13, 1904) states that unfortunately it must still be admitted that the only method of positively settling the diagnosis is to make an exploratory incision; but this is only another formula for acknowledging defeat. It at once takes the case out of the realm of science and places its treatment simply among the lower arts. Some of the conditions which render a diagnosis of the utmost difficulty are as follows: In many abdominal lesions the symptoms for a time are absolutely latent, only becoming recognizable when they are of such severity as to make intervention hopeless. On the other hand, certain cases which commence acutely, subside and apparently are

progressing favorably when of a sudden they break out with increased virulence and end fatally, the latent period having utterly deceived the clinician. Again, when the general symptoms of suppuration are present, it is sometimes impossible to say with which organ it is connected, and no data are present upon which to commence exploratory investigation. There are certain symptoms which cannot be too frequently brought before the observation of all practising physicians. In the order of their importance, they are as follows: (1) The ratio of the pulse to the temperature. If these are proportionate, the outlook is favorable, but a rise of pulse with a fall of temperature is a condition of the utmost gravity. (2) Leucocytosis. Although this sign is of the very greatest importance, it is not absolutely to be relied upon by any means, for the greatest and most acute forms of poisoning are not attended with any elevation. The ratio of polymorphonuclear cells is important. If these are increased from the normal rate of 65 per cent. to from 70 to 75 per cent., pus formation is certainly present. (3) Rigidity. This, even in the absence of other abdominal signs, is of the utmost value. (4) Vomiting. This is a variable sign, although most acute abdominal conditions commence with it. It is often absent in the latent period. If it recurs after the stomach has been emptied, it becomes of important significance. (5) Distention. This is not a characteristic sign of the early stages and may be absent even in intestinal perforation. In later stages, its vital significance is well known. If it persists longer than twenty-four hours, it is of grave moment. (6) Constipation and diarrhea. The former may be due to obstruction or to sedatives, but the latter is often indicative of septic absorption from a closed abscess. (7) Local tenderness. (8) Hematemesis and melena. (9) Increasing abdominal dulness. This, after a serious injury, is indicative of hemorrhagic effusion.

Surgical Treatment of Gall-stones.—The almost universal presence of inflammation in the gall-passages as an etiological factor in gall-stone cases is now generally admitted. The infection may reach the gall-bladder by ascending the ducts from the duodenum, by penetrating the walls of the bladder—by way of the blood vessels. Stones are very rarely formed in the ducts, those which are found there having originated in the bladder. B. F. CURTIS (N. Y. Med. Jour., Jan. 2, 1904) believes that expectant treatment should not be persisted in to the extent which has been thought allowable in the past on account of the danger of serious inflammatory processes. A grave cholecystitis with perforation is only too common and on account of the absence of jaundice the connection with the biliary system is not recognized. Appendicitis is frequently the diagnosis, especially when the gall-bladder is low down. The colicky pain, localized tenderness and rigidity over the gall-bladder are the principal signs and operation should be done if the symptoms are violent or if they do not soon abate. Obstruction of the common duct is often allowed to persist for weeks or months, at the expense of the patient's welfare, for cholemia is dangerous and so is the exhaustion of the patient from suffering, fever, and limited diet. Hepatic cirrhosis and interstitial nephritis are frequent accompaniments of persistent cholemia. Calculi in the bladder or cystic duct may also demand surgical interference. The usual symptoms are pain in the epigastrium, sometimes radiating, more or less nausea, vomiting, febrile disturbance, with or without leucocytosis, abdominal tenderness, especially over gall-bladder, and rigidity of right rectus muscle. Jaundice is sometimes present as a result of inflammation of the ducts or more likely due to pressure from the stone lying in the duct or the pressure of the distended bladder itself. If the symptoms persist unaltered for a time (two or three days in the severe cases, a week in the milder ones), there is serious danger of gangrene or perforation of the bladder, peritonitis or other grave septic complications. The special signs of danger are increasing rigidity of the muscles and an increasing leucocytosis, frequent blood examinations being made. The pulse, temperature, nausea and vomiting are less important signs. Even if the stone passes the chances are that more stones are present in the bladder and give rise to various "digestive" disturbances. He believes that the advantages of operation while the stones still remain in the gall-bladder or cystic duct and before grave infection has occurred are numerous: (1) Any inflammatory condition can be improved or cured just as drainage cures urinary cystitis; (2) Consequences of obstruction of the common duct are avoided; (3) Further attacks of cystitis and colic are prevented; (4) Further calculus formation is prevented, for the bladder may be removed or rendered so healthy by drainage that no more calculi will form; (5) The dangers of cholecystitis, chronic pancreatitis and cancer of the gall-bladder are much diminished.

THERAPEUTICS.

The Medical Treatment of Neuralgia.—The most effective medicinal agents in combating this condition have undoubtedly been the various coal-tar antipyretics, all of which have in addition an antineuralgic action. E. MEYER (Berl. klin. Woch., Feb. 8, 1904) highly recommends hydrochinon as a substitute for the antineuralgics ordinarily employed, but at the same time urges the use in addition of the physical measures of treatment. The drug is given in increasing doses, from 1 gram to 4 grams in twenty-four hours, in solution. The preferable time for administration is at night as the patient retires. The solution should be freshly made and kept away from the light. Marked perspiration is frequently seen, especially on the affected limb, but no unpleasant after effects were noted except in one case where nausea and vertigo were present. He does not claim that it affords a cure for these cases but believes that it is a very efficient palliative remedy.

Determining the Strength of Digitalis Leaves.—The only safe way to insure a uniform strength of digitalis leaves is the physiological test, according to C. FOCKE (Arch. d. Pharmacie, Vol. 241, No. 9). Frogs of the species of *Rana temporaria*, caught between the end of June and the end of September, are treated with subcutaneous injections of a 10 per cent. infusion until the proper dose is found which will bring about a permanent contraction of the exposed cardiac muscle in from seven to twenty minutes. An arbitrary value is then determined by dividing the weight of the animal by the dose multiplied by the time. The loss in strength depends chiefly upon age and insufficient drying; it is therefore best to dry the leaves until they can be readily powdered. They should be kept in this condition in air-tight jars and will then retain their potency for a long time. Estimating the percentage of digitoxin is absolutely useless since an almost inert drug may contain as much glycosides as a very active one. Parallel analyses made by two different chemists showed that there is no relation between the results of the chemical and the physiological tests. This is best explained by the fact that certain extractives and other glycosides enable the digitoxin to dissolve readily in water; under the influence of moisture these bodies are probably destroyed, so that the digitoxin is left.

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THE LUNGS OF NEW YORK.

A MOVEMENT has recently been on foot to preempt parts of certain parks in crowded portions of New York city for the purpose of erecting on them temporary school buildings in which those children who cannot now find accommodation or only incomplete accommodation in our present school buildings may find places. This movement is distinctly reactionary and the suggestion is one that is fraught with danger to present health and with risks for the future.

These parks have been obtained in many cases only after strenuous efforts on the part of those who are unselfishly trying to make life more livable for the poor. It is now well known and is generally unrecognized that the death rate of any portion of a large city depends to no inconsiderable extent on the amount of breathing space allowed the inhabitants. The parks that are situated in the midst of crowded districts are simply invaluable institutions for the saving of lives. They have been well called the breathing spaces of the great social body "the lungs of the city." It would be unfortunate to diminish this influence for good in any way and the adoption of this suggestion with regard to schools would certainly do so.

Education is an extremely important element in life, but it is not nearly so important as health. There are among the medical profession not a few who consider that children are rather harmed than helped by the strenuous methods and constant application demanded of them by modern educational systems. There is no doubt that there may easily be an overanxiety in this matter. There are many children who would know more at fifteen if they had not been stunted in physical, and consequently intellectual, development by unseasonable application to books between seven and ten.

The present movement seems, to some extent at least, to be a political move. There was a promise that sittings should be found for the nearly 80,000 children who are at present without complete facilities for attending school and now even questionable means may be employed to fulfil pre-election promises. This would be unfortunate. Any resumption of the park space already acquired for any other purpose than that it now fulfils would almost surely serve as a precedent in such cases and might lead to the feeling that this sort of thing could be done time and again whenever there seemed to be any special need for it. The reasons might not always be even so good as they are at present, when they are doubtful enough.

The excellent work that has been accomplished by the retiring Tenement House Commissioner and the methods he introduced into his department might thus to some extent be easily nullified. At the present time, instead of the old, awful dumbbell tenement houses, mainly composed of dark rooms, sanitary, comfortable and decent houses, even when intended for many families, are being rapidly built all over the city. Instead of the old, heavy, fetid air which prevailed in the tenement-house district, whenever one crossed the threshold, as many a young doctor in practice has good occasion to know, there is excellent ventilation in these new houses. Instead of windows opening in close proximity to the windows of adjoining houses, no window now opens within twelve feet of the window opposite and more often they are twenty-five feet apart. The air shaft is gone, as it should have gone many years ago. This is paying attention to the lungs of the great city body politic from another standpoint and already it has accomplished a noteworthy reduction in the mortality in crowded districts. It is improvements like this and those that have been secured in the small park system that must by all

means be maintained if the new administration is to have the confidence of New York citizens.

Physicians are naturally more interested in these matters than the rest of the community. It behooves the medical profession then to use its influence wherever possible for the conservation of present gain with the hope of securing still further advances in the city's sanitation. On these two subjects the preservation of our parks and the maintenance of the tenement-house law, with the enforcement of all its important regulations, physicians must concern themselves.

The present administration has given every sign of a sincere desire to accomplish the duties imposed upon it in every department. Let us hope that in these grave questions of the public health there shall be no derogation from the high standards that have been set by the old Departments of Health and of Tenement Houses, but on the contrary, that we shall have what is the only guarantee of the substantial maintenance of what has been gained up to the present, the further progress that will assure the continued amelioration even of our present satisfactory hopeful conditions.

"AS THROUGH A GLASS—DARKLY."

THE tenth annual report of the Craig Colony for Epileptics, which has been lately issued, is a most valuable document, and one which should reflect great credit upon the managers and officers of the institution at Sonyea.

One of the principal items of interest in this pamphlet, to the medical observer at least, is the report of the Craig-Spratling gun, which seems to have exploded a bursting shell into the theory that epilepsy is not infrequently caused by the eye strain, resulting from refractive errors, the correction of which, it has been maintained, would cure the disease.

Whatever the progress of modern ophthalmology may have been, its most strenuous upholders and most ardent admirers cannot deny that its standing in the general profession, among its sister specialties, and even in the laity itself, has been most seriously injured, if not irreparably impaired, by the extravagant eulogies of yet untested procedures and the utterly fallacious hopes of cures, that have been loudly heralded by certain men.

To such an extent have these methods been advertised, and written up, by their originators and their disciples, that a long-suffering and disappointed public, weary of a failure that would be classed in a business community as "non-delivery of the goods," have risen in their wrath and have mentally consigned the "eye strain" of the ophthalmologist,—with the "brain fag" of the neurologist,—to the limbo of the "refraction parlor" of the shop-keeping optician, and to the columns of the testimonials of the cure of nervous diseases, in the daily newspapers. There is not an ophthalmic surgeon in the country who has not, in the last ten years, exerted all the skill at his command in his efforts to undo the unhappy results of ill-advised tenotomies, and now, according to this report of Dr. W. P. Spratling, the use of glasses has proved to be anything but an unmixed blessing to the epileptics at Craig Colony.

As a nation, we Americans have lived a rapid and energetic life, and if it is true, that some of us have a skeleton in our nursery closets, we can hardly expect that its bones will not rattle to the music that was piped to our ancestors, in the days when men preferred Port wine to sarsaparilla, and women loved not only widely, but too well. The sins of the father are apt to be visited on the children, to the third and fourth generation, and the epileptic inheritance is hardly one that can be discounted by the cylindric glass of fashion, or the prismatic mold of form. No one can doubt the efficacy of glasses in certain cases, or question their absolute necessity, but their adaptation has not, as yet, driven all other remedial measures from the field, and we are still skeptical as to their power to reduce a congenital dislocation of the hip, or their ability to control an epidemic of yellow fever. And yet, we *are* asked to believe, that their prescription will modify, if not remove, one of the most serious and deeply rooted ills, that human flesh is heir to.

And now let us turn to these two reports, and compare the happy and rosy fancies of the first, with the sad and lead-colored facts of the second. On page 46 Dr. Spratling states as follows under the heading of "Eye Strain and Epilepsy":

"Dr. Geo. M. Gould, of Philadelphia, has long been of the opinion that epilepsy is not infrequently caused by eye strain, the relief of which would cure the disease. In my last annual report reference was made to the work of Drs. Gould and Bennett in carefully examining and fitting 68 patients at the Colony with glasses. We quote from the report referred to in part as follows:

"'The preliminary report of this work published by Drs. Gould and Bennett in *American Medicine* for September 18, last, is full of interest. Among other things the report states:

"'The astonishing fact, and one that we think deserves most serious attention, is the enormous propor-

tion among these patients of cases of injurious astigmatic and anisometropic defects. Sixty-seven of 68 had astigmatism and it is noteworthy that about one-half of the entire number of patients had unsymmetric astigmatism, a defect which almost invariably produces the most injurious results upon cerebral and assimilative function. . . . We do not say that these high and most injurious ametropic defects caused the epilepsies of these patients; that can only be determined in future by the careful records of seizures to be kept and compared with those of the past.'

"If there is anything of value in the treatment of epilepsy along this line, we are anxious to know it, and all patients so carefully fitted with glasses by Drs. Gould and Bennett, are being especially observed so that in a year or so we may make comparisons of their seizures before they wear glasses and after."

This arrangement strikes us as a most fair and impartial method of testing any virtue that may lie in the correction of refractive defects, for the relief of eye strain, producing epileptic seizures. The experiment was to be made at Sonyea, where the environment and opportunities were better adapted for such tests than in any other place in this country, and the glasses were to be fitted—if not by the originators—at least by the upholders and defenders of the faith. Medicine is proverbially a conservative science, and we can hardly expect the general practitioner to abandon his time-hallowed armamentarium, for what our Western colleagues have flippantly and disrespectfully alluded to "as a self-advertised, warranted not to rub off, blown-in-the-glass, method of cure." Certainly not, at least, until its claims have a firmer foundation than the mere *ipse dixits* of a few visionary enthusiasts.

That this caution was not unnecessary is farther shown by Dr. Spratling, who goes on to say (after a year's trial) in regard to the result of the adaptation of glasses:

"We regret having to report disappointing results. The table that follows shows that one patient only out of the 68 experienced any benefit in his disease while wearing glasses. This man's attacks were usually severe and were preceded by a definite bilateral motor aura. His mental condition was unimproved, and he has now gone ten months without a seizure. He had four attacks in October and four in November, after being fitted with glasses late in August, 1902."

The table referred to is full of interest, particularly in regard to Case X of the male and Case XI of the female list. In both of these the number of seizures were reported as 0 in the three months preceding the prescription of glasses and yet, in each the number of attacks increased to a grand total of nine in the succeeding half year. Now, it is a poor rule that will not work both ways, in medicine as in anything else, and if, as Dr. Gould states, it is true that an uncorrected astigmatism will produce an eye strain that may in turn result in epilepsy, how does he account for the increase in the morbid symptoms in these two cases, which appears to be concomitant with the installation of compensating glasses? It is a perfectly evident fact, that the placing of a cylindric lens of any number, before an emmetropic eye, will produce an artificial astigmatism, which will of course correspond to the strength of the glass employed, and, under other hands it is possible that such a glass might have been used when it was not indicated. As, however, the glasses were fitted by Drs. Gould and Bennett in person, it can only be explained on the ground of the increase of some exciting condition, which the glasses were unable to control, and which in itself is a confession of weakness in the theory, and an indication of failure in its action.

That Dr. Gould may not regard it in this light, and that he may rejoice more over the one ewe lamb that was saved, than he will sorrow over the sixty-six cases that fell by the wayside, seems probable ,as his only remark on the results, when brought to his notice, was: "The unsatisfactory results do not affect the fundamental fact that in a certain proportion of cases the cause, or a contributing cause, may be, and is, eye strain. The results at Craig Colony, I suspect, are due to the fact that in chronic cases and under the conditions, cure is not to be expected. Even in the younger patients, the constant attention of the oculist and of optician is requisite, and this could not be supplied at the Colony.

"I have had one case of typical grand mal in private practice, free now from attacks for four years; the cure due to relief of eye strain. In general, however, the result of the test at Craig Colony re-emphasizes the old truth that the cure of epilepsy consists in its prevention. If proper glasses could be given as a preventive measure in young epileptics, and the care of oculist and optician insured, I have no doubt that epilepsy could be warded off in a certain proportion of cases."

Now, what Dr. Gould may mean, by the *"constant"* attention of the oculist and optician we do not know. We have heard of ambitious students of foreign tongues, who "slept with their dictionaries," but we have never considered it essential that epileptic patients should either breakfast with their oculists or sup with their opticians. These particular patients were carefully fitted to

glasses by the men most interested in the results, and, as the report says, that they were under the *daily* care of one of the staff of the Colony, it does seem as if all the necessary requirements had been fulfilled.

The whole truth of the matter is, that we have, from a neurological standpoint, given a most undue and unwarranted prominence to the ills that the errors of refraction are capable of producing, and have then placed an almost fanatical and child-like confidence in the power of glasses to relieve them.

We have not only tested the eyes of the living, but we have ruthlessly investigated the post-mortuary murmurs of the past, and have even invaded the cold *hic jacets* of the dead. We have been taught that King Arthur should have been treated by Merlin for "brain fag"—that the chronically acquired diplopia of Brian Boru ought to have been relieved by prisms, and that the Epistle to the Corinthians was curtailed by the *migraine* of St. Paul, which was due, probably, to latent hypermetropia, uncorrected by convex glasses. Unfortunately all these illustrious personages have long since passed away, and their testimony is no more available than was the evidence of the Texan horse thief, that was hanged first and then tried afterward.

These theories, however, are all merely scientific toys—the pleasing musings of an idle hour. At the best, they are useless to the practical physician and their virtues may be summed up in the trite and classical criticism of a previous generation: "there is much in the world that is both new and true, but unfortunately those things that are new, are not true, and those things that are true are not new."

PHARMACY AND MEDICINE.

AT the seventy-fifth annual meeting of the College of Pharmacy of the City of New York, held last Tuesday evening, a unanimous affirmative vote was cast for the ratification of the amalgamation of the College of Pharmacy with Columbia University, the former to represent the pharmaceutical faculty in the University development.

This step is one of much importance not only to the many pharmaceutical interests of this city and country but to the medical interests of the city as well.

It is now only about a hundred years since a pharmacist first isolated morphine from opium and opened the way to a great stream of investigation that has made modern pharmacology possible and the study of the physiological action of potent drugs effective. It may come as a painful surprise to many physicians that the greatest part of this work of investigation and discovery has been carried out not by the students of medicine but by pharmaceutical chemists and were it not for them we would still be dosing our patients with the nauseous draughts that were given by Paracelsus, Boerhaave, Sydenham and our medical forebears.

The investigation of active principles has been as keen and as strictly professional in its aims and enthusiasms as has been the search for changes in morphological structure in nerve and viscus. Out of the former have been created large commercial enterprises that have pushed forward and given to the profession not only practical standard and palatable pharmaceuticals but the great flood of newer synthetics without many of which the modern physician would be stripped of much of his power to comfort and to heal.

Pharmacy has often been called the handmaiden of medicine. In therapeutics, if the signs be read aright, we fear that the physician has wandered far from the paths of research, and is now the patient and blind follower of the more active, wide-awake and enterprising pharmaceutical chemist.

This, however, is but a swing of the pendulum and we hope that the lessons taught will have a salutary effect in awakening medical interests to the situation that confronts them. Behind the veil of commercialism, too thick at times it must be confessed, to be entitled to such a mild term, perfectly ethical investigations have been encouraged by the pharmaceutical interests in this and other lands, but many of us have been blinded to this development because of the commercialism that has placed pharmaceutical enterprises under an ethical ban.

In this amalgamation we see the development of a broad university ideal such as is found in our European centers. By it we witness the welding of the best interests of scientific pharmacy and practical medicine, and in the union of one of our oldest and best pharmaceutical colleges with New York's greatest university we can confidently hope to see the standards of pharmaceutical education raised to a level worthy of its professional heritage and to look forward to the time when the professional developments in pharmaceutical education will animate, govern and regulate the tradesman.

ECHOES AND NEWS.

NEW YORK.

Infectious Diseases in the Bronx.—An epidemic of measles and scarlet fever has broken out in the Bronx, and at the present time there are more than 400 cases of measles on record with the Bronx Board of Health and between 150 and 200 cases of scarlet fever, with a daily increase of cases. The Department of Health in the Bronx is crippled by the need of disinfectors, there being only four men to do this work. It is expected that additional funds will be provided this week.

New Scholarships for College of Physicians and Surgeons.—The Committee on Scholarships at Columbia has announced five Harsen scholarships for the next Academic year—two for the second year class, two for the third, and one for the fourth. Also eight Vanderbilt and Faculty annuities, to be awarded upon presentation of satisfactory evidence as to ability, class standing and moral character. Announcement of successful applicants will be made about July 1. Each scholarship will be worth $250, of which $125 is to be paid at the beginning of each half year. There are no gratuities provided for students of the first year.

Special Medical Courses at Teachers College.—Teachers College has announced a special course of lectures in connection with its regular work in physical education and its special one year's course, arranged at the request of the Society of Superintendents of Training Schools for Nurses for preparing trained nurses to become superintendents of hospitals and principals of training schools for nurses. Two lectures on the nervous system have already been given by Dr. S. E. Jelliffe. Two will be given by Dr. W. A. Bastedo, on materia medica, and methods of teaching it. Other similar lectures will follow.

Measles Return.—The record of cases of the past few weeks has convinced the officers of the Board of Health that the measles have struck town again in the more or less epidemic form which they seem to take every other year or so, which has given rise to the expression that "measles skip a year." There are at present 1,435 acute cases in the five boroughs, and the number of cases convalescent raise the list to over double that number. It is not possible to state positively how the present number of cases of measles compares with that of previous outbreaks, as figures have been approximately complete only in the past few years, but the present number exceeds that of any other year since 1898.

Mt. Sinai Attending Physicians.—In addition to the attending physicians mentioned in last week's MEDICAL NEWS, the following should be included: Attending Genito-urinary Surgeon, Dr. H. Goldenberg; Adjunct Attending Genito-urinary Surgeon, Dr. Martin W. Ware; Adjunct Attending Physician (Children), Dr. Henry Heiman; Pathologist, Dr. F. S. Mandlebaum; Assistant Pathologists, Dr. E. Libman, Dr. E. P. Bernstein, Dr. Herbert L. Celler; Anesthetists, Dr. M. L. Maduro, Dr. Myron P. Denton; Admitting Physician, Dr. Max Rosenberg.

The East Side Physicians' Association.—This Association held its first annual dinner at the Tuxedo, March 12. Dr. R. Abrahams presided. The following gentlemen responded to toasts: Dr. Ignatz Morvay Rottenberg, President of the Association, answered to the toast "Our Society;" Health Commissioner, Dr. Thomas Darlington, responded to "The Health Department and the Physician;" Prof. Richard James H. Gottheil dilated on "Medicine and Humor," and Mr. Carl Hauser humorously discussed the difference between the East Side and the West Side Physicians.

Watertown Epidemic Abating.—Dr. George A. Soper, of New York, the sanitary expert, who is in charge of the typhoid fever situation at Watertown, says that there is a marked improvement. The number of cases reported daily shows a decided decrease, and the total number of cases is much less. The number of cases now in the city is less than 500. Arrangements are practically completed for supplying the city with pure spring water. Some tank wagons will be run until the filtration plant is in operation next fall.

Proposed State Water and Sewer Commission.—A bill has been introduced at Albany which places the water and sewerage systems of all towns in the State under control of a Board of Management. This board has power to plan new sewerage and water plants, to provide for the extension and improvement of old plants, and to exercise legal control over all conditions detrimental to public health. The salary of each commissioner is placed at $8,000, a secretary will receive $3,500, a marshal $1,500, and the clerical force consisting of inspectors, bacteriologists, chemists, etc., will be the other officers. As the bill reads the commissions will "consist of three competent persons who shall be appointed by the Governor by and with the consent of the Senate for a term of five years. One shall be a competent civil and hydraulic engineer and one a competent sanitary engineer and bacteriologist." Nothing is said about the third, but if the measure goes through it is likely that a medical man will be appointed.

New York State Lunacy Report.—The fifteenth annual report of the State Commission in Lunacy was presented to the legislature last week. The total cost of maintaining the 24,187 insane in the State hospitals during the last year was $4,104,689, and the average weekly per capita cost was $3.32, an increase of twenty cents a week over the preceding year, or a gross addition to the maintenance fund of $382,342. In addition the commission expended $632,000 for new buildings and extraordinary improvements. Five thousand new cases of insanity developed during the year, or 434 more than during the previous year. There were 1,263 recoveries and 1,100 were also sufficiently improved by treatment to enable them to return to their homes. The percentage of recoveries was 24.72, as against 24.60 the preceding year. The total number of insane in all institutions was 25,934.

Immigrant Lunatics.—The commission reports a continued and increasing burden resulting from the admission to the institutions in and about New York City of alien lunatics. Notwithstanding increased inspection at Ellis Island and other ports of entry a considerable increase in the number of admissions of patients of this class was noticed during the year. Difficulty is experienced by the commission in returning these aliens at the expense of the steamship companies bringing them to this country because of inability to determine the antecedents of many of this class owing to their confused mental conditions. The commission refers to the constant increase in the number of old and demented cases in the State hospitals, and suggests as a possible relief to existing conditions the boarding out system of the insane in private families, now so successfully practised in the State of Massachusetts. The commis-

sion points out that if this system were adopted by the State, the closest inspection of the insane, even when cared for in their own families at a per capita rate to be allowed them, could be provided.

Colony Offshoots.—The commission directs attention to the latest development in the way of colony offshoots from the large State hospitals, namely, the fitting up and occupancy of the lake side cottage and accessory buildings in connection with the Rochester State Hospital. These buildings are located on the shore of Lake Ontario, several miles distant from the hospital, and during last summer large parties from the hospital were installed at the colony, the stay usually lasting some two or three weeks for each party, with resultant benefit to the patients. The most important development in this direction, however, will be the possible using of the old Sammis Hotel buildings, on Fire Island, now under charge of the Quarantine Department. The commission renews its recommendation for the establishment of a reception hospital in New York City designed for the immediate care and treatment of acute and curable cases of insanity; that arrangements be made at general hospitals in the larger cities and towns for the temporary detention of emergency cases, this provision supplanting the use of jails and station houses for this purpose; also the establishment of so-called convalescent houses at a distance from the hospitals for patients not sufficiently recovered to return home, yet able to leave the institution.

Immigration and Insanity.—A State board of expert sanity inspectors, to be stationed at Ellis Island, and to inspect immigrants with a view of detecting those in such stages of mental weakness as would lead to their becoming a public charge, is provided for in a bill to be introduced in behalf of the State Commission in Lunacy. Although immigration is wholly a national Government affair, it is said that the United States Commissioner of Immigration is in favor of the proposition for a State board, and that the necessary permission would be granted by the general Government. The interest of the State in the matter is conceded, as a large proportion of the mentally defective become charges upon the State within a short time. It is estimated that the expense under the proposed act would not exceed $25,000 a year, which would include one chief inspector at $5,000, two inspectors at $3,000, a male interpreter at $2,000, and a woman interpreter at $1,500 per year. It is said that the foreign-born inmates of the hospitals for the insane number more than 50 per cent. of the whole, and it is believed that the proposed inspectors, by their exclusion of mentally defective immigrants, would save all the cost of the board. The United States Marine Hospital has charge of this matter at present, but it does not employ experts in mental disease, and there is no means of detecting mental disease except through a physical manifestation of it. It is said by the chief officer of the New York City Pavilion for the Insane, that often insane patients are received who have been in the country only a few days or months. The city of New York has no local interest in the matter, as such patients become a State charge. In a letter on the subject, Commissioner of Immigration Williams says that whenever this proposed board should determine that an immigrant was insane at the time of his taking passage, he could be deported at the expense of the steamship company; and that if no such proof existed he could be deported at any time within two years at the expense of the Government. The proposed bill is said to be favored by Gov. Odell.

Mt. Sinai Hospital.—With impressive ceremonies and in the presence of the Governor of the State and other officials the new Mount Sinai Hospital was opened last Wednesday afternoon for work. One of the speakers, who has long been a friend of the institution, referred to the time when Mount Sinai was struggling to raise a $10,000 fund for the sake of continuing its mission, and he spoke with a glow of pride of what the charity had become. Occupying a whole block and comprising ten buildings, costing in all nearly $3,000,000, the Mount Sinai Hospital was revealed Wednesday as a monument to the generous impulses of those who had for many years labored to upbuild it. More than fifteen thousand persons had been bidden to the public reception and two-thirds of that number were present Wednesday afternoon and evening. The block from Fifth to Madison avenue and from One Hundred and First to One Hundred and Second street, which the buildings occupy, was guarded by platoons of police, who kept the throng moving to and from the doors. Sixty guides escorted parties of fifty visitors each through the buildings, for so many were the halls and corridors and wards that the guests might have become confused in the place and portions of the hospital would have become overcrowded. Governor Odell and former Lieutenant-Governor Woodruff, Charles V. Fornes, president of the Board of Aldermen, representing Mayor McClellan, and other prominent men arrived at one o'clock and were escorted to the directors' room. Isaac Wallach, president of the institution, made an address of welcome, after which the Rev. Dr. Samuel Schulman, rabbi of the Temple Beth-el, offered prayer. Mr. Joseph Fox, in the absence of Isaac Stern, chairman of the Building Committee, who is ill, presented the keys of the hospital to the directors. Governor Odell was then introduced: "I have been much interested in the work of enlarging Mount Sinai Hospital," said the Governor, "and I take this opportunity to congratulate you on your success. The work accomplished by such private institutions as this is one of unselfish interest. I have no doubt that in this hospital devoted to the alleviation of human suffering, which knows no creed or nationality, there will be found a field which will call for the greatest effort and sacrifice on your part. I have no doubt, because I know the generous impulses of your race, that whatever is demanded will be forthcoming."

Mr. Fornes praised the unselfish spirit which had called Mount Sinai Hospital into being.

Edward Lauterbach referred to the early struggles of the institution and to the success which had finally crowned its work. "There is a distressing spectacle in this city," said he, "and it is that kindred institutions are threatened with diminution in great services because of lack of funds. That condition can never come to Mount Sinai as long as the pulse of the great Hebrew community beats in unison with those of its directors, whose sacred duty it is to preserve and maintain it."

All of the visitors were deeply impressed by the size and convenience of the buildings. Although the structures are separate in appearance, they are in reality so connected by means of ground floor corridors that there is communication with all parts of the institution. The buildings are of pressed brick and limestone and are constructed in the most substantial manner. Five of them, the medical, surgical

and private hospitals and the children's and isolation pavilions, are for the housing of patients, and they contain in all 456 beds. Every possible detail has been followed out which will insure cleanliness and freedom from infection. There are no sharp corners or angles anywhere in the institution except in a few ornamental portions. The corners of the walls and the places where the floors and the walls join are rounded so that there are no angles in which dust may collect. Each building has an independent ventilating system, by which air drawn from high above the street level into the cellar is filtered and distributed through the building by means of large fans after it has been warmed to the desired temperature.

Typhoid at Poughkeepsie.—Within a few weeks many cases of typhoid fever have developed in that city, and new cases are being reported daily at Vassar Hospital, twenty-one patients now being treated for that disease. The situation is regarded so grave that last Wednesday a conservative local paper declared that the attention of the State Board of Health should be called to the epidemic, and that vigorous sanitary methods must be taken to wipe out the disease. It is further urged that the city authorities might wisely close every well and stop all sources of drinking supply except the city water, which latter is taken from the Hudson River and sand filtered.

Health Inspectors.—An excellent bill is now before the Assembly relative to the grading of Inspectors on the staff of the Board of Health of New York, which merits the support of public-spirited citizens. It amends the charter of New York by the addition of a section providing that on and after the first day of January, 1905, all Health Department Inspectors who have been for fifteen years in that work shall be classified in the first grade; those of ten and less than fifteen years' service in the second grade; those of from five to ten years' service in the third grade, and all of less than five years' service, including all who may hereafter be appointed, in the fourth grade. Continuous and faithful service will entitle an Inspector to be advanced from a lower grade to a higher one as he passes the five, ten, and fifteen year periods respectively. The pay of the several grades is fixed as follows: Fourth grade, $1,200 per annum; third grade, $1,500; second grade, $1,800; first grade, $2,100. These salaries are subject to such deductions for sickness, absence on vacation, fines, and forfeitures as the Board of Health shall prescribe by rules applicable to all grades alike. The work of the Health Department is a service of experts. It calls for special knowledge, and in no branch of the public work is experience more valuable. It is not to be expected that any one qualified to pass the civil service examination and undertake the duties of an Inspectorship can be had for less than $1,200 a year. He should be a physician or an engineer, and to secure promotion he must give up all opportunity for another career. If after five years he is not worth $1,500 he does not belong in the service; and if after fifteen years, by which time the average Inspector will have reached or passed forty, he cannot be sure of a salary of $2,100 at least, he has absolutely no incentive to make the work of the department more than a temporary convenience, to be abandoned as soon as any other opportunity is offered. Above all things, the faithful Inspector who attends to his duties and not to his "pull" must be protected against the injustice of remaining stationary in his position and salary while new men with more potent influence are appointed at higher salaries and put over him. The efficiency of the public sanitary administration depends upon the judgment and experience of our Health Inspectors. If they are inefficient or corrupt the Board of Health is powerless. The salary demands of the Inspectors are extremely moderate, and the principle for which they contend in urging the enactment of the bill referred to is too sound to permit discussion.—N. Y. *Times*.

PHILADELPHIA.

Typhoid Fever.—Though the typhoid fever cases for the past week were considerably less than during the preceding week, the disease is expected in almost epidemic form in the ensuing month. This is because of the exceedingly filthy water that has been supplied during the recent high freshets in the rivers. Filter beds are promised but seem to be still far in the future.

Pharmacist Examinations.—The report of the last examination of the State Pharmaceutical Examining Board shows a large percentage of failures to secure certificates. Of the 215 applicants for the certificate of registered pharmacist, only 136 qualified; of the 138 who sought to be qualified assistant, only 88 passed.

Medical Laboratories of the University of Pennsylvania.—At the dedication of these laboratories on June 10, many noted physicians will deliver addresses. Among the names already announced are those of Dr. H. P. Bowditch, of Harvard; Dr. R. H. Chittenden, of Yale; Dr. George Dock, of Ann Arbor; Dr. H. C. Wood, of the University of Pennsylvania. The general committee of arrangements will hold its first meeting on March 19. Many of the members of the American Medical Association, which meets at Atlantic City during this week, are expected to attend the exercises. The laboratories have been three years in building, the approximate cost being $700,000.

Filariasis.—At the meeting of the Pathological Society on March 10, Dr. D. Riesman showed for Dr. F. H. Howard, of Williamstown, Mass., the heart of a dog that contained numerous specimens of the *Filaria immitis*. In discussing the question of filariasis, Dr. Allen J. Smith advanced a hypothesis to explain the periodic appearance of the filaria embryos in the peripheral circulation. He believes that the phenomenon depends on the caliber of the peripheral blood vessels. During the daytime, or the period of the host's activity, the tonic contraction of these vessels do not permit the passage through them of the embryo parasites. During the period of rest the vessels relax sufficiently to allow the parasites to appear in them. This is believed to be possible without causing capillary embolism.

Acute Hemorrhagic Leucemia.—A case of this imperfectly understood condition was reported at the section on Medicine of the College of Physicians, March 14, by Drs. J. H. Musser, J. N. Wistar and N. B. Gwyn. The patient was a male, aged fifty-one years, with a good family and personal history. The disease began as a sore throat, the patient thinking he had taken cold. At about the same time hemorrhagic spots appeared on the forehead. A few days later one of the postauricular lymphnodes was found to be enlarged; this was followed by involvement of the postcervical nodes, the parotid, and submaxillary glands. There was bleeding from the gums and tonsils, with suffusions of blood over the chest and legs. The temperature rose as high as 103° F. The blood count showed red cells below

two million, leucocytes 382,000; the differential count gave 98 per cent. lymphocytes. Blood cultures were sterile. The patient died on the forty-fifth day of the disease.

Lorenz to Receive Degree from Jefferson.—It is announced that Dr. Adolph Lorenz will be present at the annual commencement of Jefferson Medical College in May to receive the honorary degree of Doctor of Laws. He is expected to take part in a clinic to be held at the hospital of the college a few days later, at which Dr. Albert Hoffa, of Berlin, will also be present and operate. Prominent English orthopedic surgeons are also to attend the clinic.

Free Hospital for Poor Consumptives.—At the annual meeting of the board of this institution March 14, President Lawrence F. Flick said there had been such a diminution in the amount of the donations received during the past year that the society had been compelled to cease maintaining thirty free beds in the hospitals of Philadelphia. These had been supported for several years for consumptives who for various reasons could not be cared for at the White Haven Sanitarium. Dr. Flick believes this drop in donations to be due to the erroneous impression that Mr. Phipps had also endowed the White Haven institution when he made his gift to Philadelphia. There is a waiting list of over 300 patients for the sanitarium. Dr. Flick recommends the establishment of a farm for convalescents where they can be employed at partially remunerative wages. Election of officers resulted in the reelection of Dr. Flick as President.

The Henry Phipps Institute.—The fifth lecture in the International Course, given under the auspices of the Phipps Institute, will be delivered by Prof. Eduardo Maragliano, of Genoa, Italy, on Monday, March 28, at the Witherspoon Bldg., Philadelphia; the subject being "The Specific Therapy of Tuberculosis and Vaccination against the Disease." The profession at large is invited to attend.

CHICAGO.

Hospitals Seek New Law.—The representatives of the various hospitals of the city met recently in the rooms of the Chicago Medical Society to discuss suggested changes in the city hospital ordinance, which is said to be so defective that, were it enforced, no hospital could operate under its provisions. After considerable discussion, a subcommittee was appointed to draft a new ordinance. The members of this committee are Drs. D. A. K. Steele, of the Chicago Hospital; L. Blake Baldwin, of the Samaritan Hospital; A. J. Ochsner, of Augustana Hospital; J. H. Hoelscher, of Alexian Brothers' Hospital, and M. L. Harris, of the Passavant Memorial Hospital.

Society and Criminals.—In an interview, published in the Chicago *Inter-Ocean*, March 6, Dr. G. Frank Lydston, among other things, says that the individual criminal is not responsible for his crime. Society itself is to blame for all the evils that exist in it. Under the present social system the degenerate classes—the criminals, insane, inebriates, and paupers—are increasing almost three times as fast as the population, which threatens to result in the degeneracy of the American people. The evils of society are the diseases of society. There is, then, a pathology of the social body, comprising most of the evils from which society suffers—crime, social evil, pauperisms, insanity in its sociological relation, anarchy, by which the author means destructiveness; political corruption, and disturbances incidental to economic and industrial activities. He contends that degeneracy underlies all social evils. Any marked retrogression in the scale of development constitutes degeneracy. These evidences of degeneracy are most often found in the crime class, for degeneracy constitutes the underlying cause of criminality. Any given social system has just about the proportion and kind of degenerates that it deserves. If Chicago is overrun with criminals, if it is filled with paupers, if it sends hundreds of insane to the public institutions, one may know that, from a scientific standpoint, it deserves them. The criminal is the microbe; the social environment is the soil that gives it growth. The human being is naturally vicious and criminal. This veneer of culture which has gathered through the ages keeps the average man from becoming criminal, but when vice and crime break out, it is simply the harking back to the primitive impulse. If there were no social scheme there would be no crime. Our prevailing crime and vices only begin at the initiation of the communal social state. Our social system begets the inebriates, the epileptics, the evil women, and the insane. They are merely the flotsam and jetsam of the social action. They are the evidences of society's self-contamination. This contamination begins at the marriage license window, for we never have had sense enough to govern matrimony. Matrimony should be run on the same lines as the life insurance business. Until it is, we will have the vicious and the criminal—and the divorce court. When men and women of degenerate tendencies marry, their children will be degenerates. Degenerate children mean thieves, murderers, evil women, paupers, insane, cripples, consumptives, epileptics, and inebriates. If we will control the issuance of the marriage license, confining it to people whom the State knows to be not degenerates, we will do away with much of our costly legal machinery, our asylums, our jails, and our almshouses. Punishment and reform along present lines are failures. It is true that some criminals have been reformed, but, in the aggregate, moral persuasion and punishment have shown no results. Despite all the punishment, crime has increased. While this condition exists, it would be folly to expect we can grow better or even hold our own. Crime is now increasing much more rapidly than the population. From 1850 to 1890—long periods must be considered in a question of this kind—the population of our country has increased 170 per cent.; while the number of our criminals increased 445 per cent. Criminality among females has greatly increased. Suicides have increased. In New York alone in the ten years, between 1886 and 1896, felonies increased 90 per cent. The startling increase in crime in American cities, while due in part to the stupidity of our government in permitting our country to be the dumping ground for the social refuse of Europe, is largely due to influences that are peculiarly American. The American thinks harder, works harder, and for longer hours, and takes less healthful recreation and rest, than any other man on the face of the globe. These conditions tend to favor a faulty, nervous constitution, and with this comes degeneracy and all its attendant evils.

Remedies.—The most efficient remedy would be the absolute prohibition of marriage among people of this class. Public sentiment is against it, but public sentiment favors parental consent, a demand for the age of the parties, and is against the marriage of blood relations. Inebriates should never be allowed to marry, for inebriety is the most important cause of degeneracy. The insane, the epileptic, the pauper, the criminal, or the incurable consumptive, should be denied the right to be married. It may be argued that such control of marriage would be interference with individual rights, but in everything else individual rights are submerged

in social rights. In making an immediate fight against these evils, the author would clean and purify every plague spot in the city. The slums breed the degenerates; society makes the slums. Morality and self-respect are incompatible with squalor, dirt and poverty. We do not find self-respecting people in the slums. He would have model tenements in which the bath would be a prominent feature, clubs for boys and girls, lectures, concerts, theatrical and educational entertainments, clean streets and alleys. This would go far to stem the tide. Free baths and gymnasia are far superior in his opinion to missionaries or civilizers in the slums. The cities may grow deplorably bad, be overrun by degenerates, be terrorized by criminals, be made poor by supporting its paupers and its disease, but the blood of the rural districts is what it must rely upon to keep it from ruin. If Chicago would spend in cleaning itself one-half what it spends for the punishment of people whose crimes are a result of its filthiness, these crimes would be greatly decreased in number. But the American cities largely refuse to do this, and the result is that there is an alarming increase in the number of vicious and criminal persons, and a natural tendency toward degeneracy.

Antitoxin for the Poor.—The City Health Department in its weekly Bulletin makes the following announcement: "(1) Physicians may obtain antitoxin free from the Antitoxin Stations of the Department for the gratuitous treatment of their charity cases. (2) Physicians may have their prescriptions for antitoxin, to be used in their pay practice, filled by any Antitoxin Station at the following prices: No. 1 (1,000 units), 75 cents; No. 2 (2,000), $1.25; No. 3 (3,000 units), $2.25. The physician obtaining free antitoxin receipts for it, and the receipt contains the following certificate: 'I hereby certify that the family of this patient is unable to pay for the antitoxin; that the case is urgent; that I am attending without fee, and that I will report the termination of the case on the postal card form of the Health Department furnished by the druggist.'"

OBITUARY.

Dr. CHARLES T. WHYBREW died from Bright's disease last Tuesday at his home. He was born in New York sixty-two years ago. He was a graduate of the College of Physicians and Surgeons and was a member of the New York County Medical Society.

Dr. STANLEY G. CLARKE died last Saturday from heart failure. He was born in Camden, Ont., in 1842, and was a graduate of the University of New York. He began the practice of medicine in Brooklyn about fifteen years ago. He was one of the organizers of the Central Throat Hospital, and had been president of its board of managers. He was a member of the Medical Society of the County of Kings, the Brooklyn Medical Society, and Ridgewood Lodge, No. 710, F. and A. M. He had been an inspector of the Board of Health in Brooklyn for several years.

Dr. VERRANUS MORSE, of Brooklyn, died last Wednesday night from the shock following a fracture of the hip. He was born in Springfield, N. H., in 1818, and was graduated from Dartmouth College in 1845, and from the medical department of the New York University four years later, when he took up the practice of medicine in this city. For many years he was treasurer of the New York Medical Society.

Dr. WILLIAM J. MCDERMOTT, of New York, seventy-three years old, a noted surgeon in the Civil War and a personal friend of Presidents Lincoln and Grant, died Saturday, March 12, at his home after a lingering illness. Dr. McDermott was born in Portland, Me., and received his early education in St. John, N. B. In 1853 he was graduated in medicine, and after two years of study in Europe he began practice in the village of Westchester. Dr. McDermott was elected to the Assembly in 1860. When the first call for troops was issued Dr. McDermott resigned from the Assembly and enlisted as surgeon and went to the front with the Sixth New York Volunteers. At the end of three months the regiment re-enlisted as the Sixty-sixth New York Volunteers under Col. Joseph Pinkney. Dr. McDermott saw much active service. He was with Col. Ellsworth when that officer was shot at Alexandria, and ran to his assistance. He assisted in the amputation of Gen. Howard's arm at the battle of Fair Oaks, and participated in the battle of the Wilderness, being left in charge of the wounded. He was captured and sent to Libby Prison, where, after a short term, he was paroled. Shortly before the close of the war he served under Surgeon-General Baxter, and was mustered out in October, 1865. Returning to Westchester he renewed his practice.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

LONDON, February 27.

THE KING AND MEDICAL EDUCATION—DEATH OF SIR EDWARD SIEVEKING—HOW A FAMOUS ARTIST HAS ACHIEVED LENGTH OF DAYS—THE DISCOVERER OF THE LARYNGOSCOPE—THE REAL SECRET OF LONGEVITY—THE STATE REGISTRATION OF NURSES.

THE King has shown his practical interest in the improvement of medical education by offering to contribute $500 toward the establishment of the proposed Institute of Medical Sciences, of which mention was made in a previous letter. The object of this institute is to concentrate the teaching of the fundamental and ancillary sciences which form the basis of medical training. An appeal to the public was issued not long ago, and at a meeting of the Faculty of Medicine held on February 19, it was announced that the Committee had received promises of donations to the amount of $40,000, including donations from the Presidents of the Royal College of Physicians and the Royal College of Surgeons. Mr. Alfred Beit, the South African millionaire, and Messrs. Rothschild have contributed $25,000 and $2,500, respectively. But on the whole the response so far has not been very encouraging to the promoters of the scheme. A Rockefeller is badly needed to aid the cause of medical education in London.

Sir Edward Sieveking, a physician of some celebrity in his day, has just passed away at the age of 88. He came of German stock and was born in London in 1816. He took his doctor's degree at the University of Edinburgh in 1841, and returning to London was appointed to the staff of St. Mary's Hospital, then newly founded, and later to that of the National Hospital for the Paralyzed and Epileptic. He was physician-in-ordinary to Queen Victoria and to Edward VII., when Prince of Wales, and was appointed Physician Extraordinary to the King in 1901. The great disappointment of Sieveking's life was that he happened to be out of the way when he was wanted to take a share in the treatment of our gracious Sovereign in the attack of typhoid fever which so nearly slit the thread of his life in 1871. As Sieveking could not be found, Gull was called in and took the opportunity of establishing himself as a member of the sick prince's household. Gull had a highly cultivated faculty of ingratiating himself with patients, and he naturally put forth all his powers of captivation at the bedside of the heir to the throne, with the result

that he supplanted Sieveking. *Les absents ont toujours tort*, and royalty never forgave the unlucky physician who did not happen to be at hand when he was wanted. Sieveking was for some years editor of a highly respectable but long defunct periodical called the *Medico-Chirurgical Review* and he contributed largely to the literature of medicine, particularly in the field of nervous diseases, to which his connection with the National Hospital led him to give special attention. Among his works may be mentioned the Croonian Lectures on Localization in Disease, delivered before the London College of Physicians in 1866; a monograph on Epilepsy, a second edition of which appeared in 1861; a "Manual of Pathological Anatomy," produced in conjunction with H. Jones, in 1854, and a book entitled "The Medical Adviser in Life Insurance," which has gone through more than one edition, and which is still of value to physicians who have to make medical examinations on behalf of insurance companies. He was also the inventor of that useful little instrument the esthesiometer. Sieveking was made a knight in 1886 and received the honorary degree of Doctor of Laws from the University of Edinburgh. He was for some time a Vice-President of the Royal College of Physicians. He was a worthy man of whom Tacitus might have said *Bonum virum facile dixeris, magnum libenter.*

On February 23, G. F. Watts, the Royal Academician, one of the most famous of British artists, celebrated his eighty-seventh birthday. Although he is so far declined into the vale of years he still walks as one that remembers that the Creator *Os homini sublime dedit velumque tueri jussit.* He walks without a stick and until a few years ago was known as a bold and skillful rider. He does not need to use spectacles. He rises with the sun and goes to bed with it—at least in summer time, when he is often up and at work on his pictures or statues as early as half-past three. Asked what is the secret of his retention of his powers so far beyond the age when most men are content to vegetate, Mr. Watts said to a sympathetic inquirer: "I have always been very sickly. From my earliest years I have never been robust, and, indeed, for this reason I was compelled to refrain from most of the violent exercises of youth. I neither drank nor smoked, nor did anything, in fact. I am a very negative sort of a person. I have just lived—with the exception, of course, of my work. But although I have been successful, far beyond anything I ever hoped when I began life, I cannot say that the joy of life has ever been mine. I enjoy my work; I am intensely interested in it, and am continually endeavoring to improve, for, if I don't improve now, when shall I ever have a chance of doing so? What I mean is that the buoyant exuberance of animal spirits, which leads many people to rejoice in life for the mere sake of living, I have never known. Nor have I ever shrunk from death. In my works I have endeavored to destroy the fear of death, to cause him to be regarded, not as a dread enemy, but as a kindly friend, and such has ever been my feeling. I should, of course, regret to leave work undone and to part from those friends whom I love; but a sense of the weariness of the world and the suffering and sadness which seem to be inherent in mortal things have weakened if not destroyed that joy of life which is common to most young things. The condition of things in this world, so far as I can see it, full of suffering and sorrow, saddens me. I feel it might have been so much better arranged in many things; and the burden of it weighs upon me. That is one reason why I feel that every theological student, before he applies himself to theology, should be thoroughly grounded in physiology. Too often theologians seem to regard the body with contempt, not to say dislike. To live a healthy life, to have the body in which your soul dwells in good working order—these are surely the first duties of the religious man. How many generations have lived and died in the belief that piety consists in the maceration of the body, and in spending many hours upon their knees crying to God to do this, that and the other for them. Instead, how much better it would have been if they had looked after their own health and looked after their neighbors.' In the long run the body avenges itself upon the soul which neglects or abuses its habitation. Being naturally sickly, I had orders to take care of my body. I have never smoked. Greater things were done in the world, immeasurably greater, before tobacco was discovered, than have ever been done since. The cigarette is the handmaid of idleness. I do not say that possibly it may not be a sedative to overwrought nerves; but overwrought nerves in themselves are things that ought not to be. Of wine I have taken very little. In my earlier years I used to take a little, but for a long time I have never touched any form of alcohol. At meals I never drink anything, not even water. Tea—yes, in moderation. And so with regard to food I have been compelled to be very abstemious—to eat moderately and of simple food, to go to bed early (nine o'clock, for the most part), to rise with the sun, to avoid violent exercise, and to enjoy plenty of fresh air." Certainly Mr. Watts' regimen seems to have developed in him a very remarkable fund of vitality, for a person "naturally sickly."

A still more venerable figure is that of Manuel Garcia, the discoverer of the laryngoscope, who will complete his ninety-ninth year on March 17. He was born at Madrid in 1805, and was the brother of Malibran and the teacher of Jenny Lind and many other famous singers. Till a few years ago he was actively engaged in voice training. He discovered the means of observing the interior of the larynx in 1854, and in the following year read his memorable paper, entitled "Physiological Observations on the Human Voice," before the Royal Society of London. His observations were made on himself, and in his examination he used two mirrors —a small one fixed on a long stem for introduction into the pharynx and a large one which served at once to throw the light—it was that of the British sun!—on the small mirror and to enable the observer to see the image formed thereon. The discovery was treated with indifference, and for years the laryngoscope was spoken of by superior persons in this country as a physiological toy. Garcia's paper fell into the hands of Turck, of Vienna, who, after a short trial, declared that "he was far from entertaining too sanguine hopes about the employment of the laryngeal mirror in practice." Fortunately, the mirrors which Turck threw aside were borrowed by Czermak, the physiologist of Budapest, who quickly saw to what good use they might be put. He substituted artificial illumination for the uncertain light of the sun. The light was reflected and concentrated by a large ophthalmoscopic mirror. He had mirrors of different sizes and finally the art of laryngoscopy was presented in a practicable shape to the medical world in a paper which appeared in the *Wiener medizinische Wochenschrift* of March 27, 1858. Among the honors conferred on Manuel Garcia in recognition of his discovery is the degree of Doctor of Medicine, which was given him *honoris causâ* by the University of Königsberg.

The mention of these "grand old men," Watts and Garcia, recalls a recent utterance of a London Coroner, Dr. Wynn Westcott, on the secret of longevity. At an inquest held on the body of an old woman who died

in the Hackney Infirmary at the age of ninety-six, the Coroner remarked that, as usual when an inquest was held on a very old person, it was found that he or she had been an inmate of an infirmary or a workhouse. He attributed this to the regular mode of life to which paupers had of necessity to submit. There can be no doubt that luxury kills more than want, and an English workhouse is an ideal place for the practice of temperance. But the Coroner did not say whether he considered it worth while to enter a workhouse simply to secure a long lease of quasi-vegetable life.

The bill providing for the State Registration of Nurses, referred to in my last letter has been "blocked," that is, marked for opposition by a member who is acting, doubtless at the instigation of the Central Committee of London Hospitals. This body, as has already been said, opposes legislation on the subject almost avowedly on the ground of enlightened self-interest. The result of the opposition is that the bill is virtually hung up for the rest of the session. A rival bill is about to be introduced which will in all probability share the same fate. Meanwhile the Committee appointed by the British Medical Association to consider the question is sitting on what, there is too much reason to fear, will prove to be an addled egg.

THE SPREAD OF TYPHOID FEVER BY CONTACT.

To the Editor of the MEDICAL NEWS:

SIR: In your issue of March 5, in an editorial reference to two communications by Dr. Weil, on typhoid fever in Germany, you make the following statement: "The writer, an American, who had the good fortune to be engaged in the service of the German government as regular 'assistant' in a typhoid laboratory in Elsass, gained exceptional opportunities to study the development of the epidemics which were at that time prevalent. After a careful study of all the factors involved he found himself driven to the conclusion that the water supply played no part in the dissemination of the epidemic, but that the infection was in each case communicated from man to man by personal contact."

"The latter brings home an idea, which is by no means new, inasmuch as it is now more than a year since Koch propounded the theory of 'contact infection,' in typhoid; but *which is still somewhat foreign to Americans.* (Italics mine.) The great German bacteriologist asserted that practically every case of typhoid was due to transference of infected material either mediately or immediately from the person of one victim to the mouth of the next. It appears, however, that the theory is not original even with Koch, but goes back far into the dim and anti-bacteriological days of medicine; since the clinicians of the earlier part of the century, among them Bretonneau and Trousseau, held firmly to it."

Now, Mr. Editor, I must say that your statement that contact infection in typhoid fever is still somewhat foreign to Americans, shows most conclusively that you are not very familiar with recent American literature concerning this disease. In the year 1900 (four years ago) there was published by the Government Printing Office a book of 239 pages, the title of which is as follows: "Abstract of Report on the Origin and Spread of Typhoid Fever in U. S. Military Camps during the Spanish War of 1898." In this report it is shown conclusively that typhoid fever was not disseminated to any large extent by drinking water, but that the chief agent in the dissemination of the disease was contact. Please permit me to give you a few quotations from the conclusions arrived at by the commission that studied typhoid fever in 1898. Some of these are as follows:

"(26) Infected water was not an important factor in the spread of typhoid fever in the national encampments in 1898.

"(29) It is more than likely that men transported infected material on their persons or in their clothing, and thus disseminated the disease.

"(30) Typhoid fever, as it developed in the regimental organizations, was characterized by a series of company epidemics, each one having more or less perfectly its own individual characteristics. The truth of this statement will be evident after the inspection of the charts showing the distribution of typhoid fever among the companies of the different regiments. On making such an examination one must be impressed with the fact so plainly evident there that men who are closely associated developed typhoid fever simultaneously. Men in the same company came down with the disease on the same day. This is still more marked when we study the cases with reference to the tents occupied by the men. Of 1,608 cases of typhoid fever which we have been able to accurately locate in the particular tents in which they occurred, together with the date of commencement of the attack, the results may be summarized as follows: Directly connectable attacks, 563, or 35.01 per cent.; indirectly connectable attacks, 447, or 27.79 per cent. Total connectable attacks, 1,010, or 62.80 per cent. Certain tents were badly infected, and the majority of their inmates developed the disease, while other tents wholly escaped. Blankets and tentage became soiled with typhoid discharges, and in this way the disease was propagated and carried by the company wherever it went. We believe, therefore, that personal contact was a very important factor in the spread of the disease.

"(33) When a command badly infected with typhoid fever changes its location it carries the specific agent of the disease in the bodies of the men, in their clothing, bedding, and tentage.

"(34) Even an ocean voyage does not relieve an infected command of its infection.

"(35) After a command becomes badly infected with typhoid fever, change of location, together with thorough disinfection of all clothing, bedding, etc., is necessary.

"(40) Medical officers should insist that soldiers remove their outer clothing at night when the exigencies of the situation permit. With from 12 to 16 men in a tent, all sleeping in their clothes worn during the day, and possibly with some of them soiled with infected fecal material, the effect upon the general health certainly could not be beneficial, and the possibility of the dissemination of infection must be admitted. If privates in the ranks would give more attention to personal cleanliness and if they were furnished with quarters in which they could keep themselves clean, typhoid fever and other infectious diseases among the troops in the field would be greatly decreased. Our investigations show that tent infection must have been an important factor in the distribution of typhoid fever."

I might give you further quotations, but suffice it to say that no one can look at the chart of typhoid fever in the 15th Minnesota, as given in the volume to which I have referred you and come to any other conclusion than that typhoid fever in that regiment was disseminated largely, if not altogether, by contact. In the complete report, which has not yet been published, ninety-two regiments have been charted, and every chart shows that contact was the principal means by which the disease was spread.

Now, Mr. Editor, I think I am not too positive when I say that whatever Bretonneau or Trousseau may have thought, or whatever Koch propounded "more than a year ago," the fact that typhoid fever is spread largely by contact was first demonstrated by American observers.

W. C. VAUGHAN.

ANN ARBOR, Mich., March 12, 1904.

RELATIVE TO AUTOPSIES IN PUBLIC HOSPITALS.

To the Editor of the MEDICAL NEWS:

SIR: Your editorial in the NEWS of March 5, relative to autopsies in public hospitals, should meet with the approval of the entire medical profession and of the great army of scientists engaged in the study of diseases common to mankind, especially such diseases as Epilepsy and Insanity whose etiology is so obscure at the present time.

To show in part the interest felt in the need of a law permitting autopsies at the Craig Colony, let me quote some extracts from letters I have received on the subject:

Dr. Pearce Bailey—"As President of the New York Neurological Society, I should like to write you to express my conviction of how necessary it is for the good of humanity at large that this Bill be passed. The unfavorable outlook in every case of epilepsy is due, in large part, to the fact that we do not understand what epilepsy is. We can never hope to understand what it is unless we have the fullest opportunity to investigate its underlying causes, and of course the first thing to do is to have larger opportunities for systematic examination of the brains of persons dying of epilepsy."

Dr. Adolph Meyer—"I heartily approve of the reintroduction of the Bill concerning autopsies. The scientific side of the question needs no argument. Autopsies must be available to complete our information about the nature of diseases. In these days when it is possible to perform complete autopsies without any disfigurement or other unpleasant effects on the feelings of friends, we can only make superstition responsible for the objection of people who mistake an opposition of spirit for liberty."

Dr. Frederick Peterson—"It seems to me that such a Bill should be passed. It is certainly in the interest of the epileptic, whose disease needs to be more thoroughly studied than it ever has been before, to the end that we may ultimately discover some means of cure. All of the cases that die at the Colony should be scientifically investigated."

Dr. Roswell Park—"In the interest of science, I think it one of the most important measures of recent years. Any disease of such unknown and mysterious nature as to justify a State institution for the care of sufferers from it, not only justifies, but demands, a most painstaking search into the causes. There never has been in the world such an opportunity afforded for careful study of epilepsy as is now afforded at the Craig Colony, and it would be a great misfortune should morbid sentiment be allowed to interfere with the scientific side of the disease. It seems to me that not only should autopsies be permitted but required, and that every laboratory convenience for its study should be afforded in this research."

Dr. M. Allen Starr—"I am heartily in favor of the Bill. If the Craig Colony is to be of use to the general public as well as to the poor victims of epilepsy, it is only by means of scientific work on the subject."

Dr. Samuel B. Ward—"It appears to me that such permission is very desirable in the interests of science, and will be no hardship to anyone. The Bill certainly ought to pass."

Dr. Henry Hun—"The most important method of study, in my judgment, is the comparison of symptoms observed during life with the lesions found in the nervous system after death. To do this, of course, autopsies are essential. It is most important that autopsies should be promptly held in all cases of death. The Craig Colony should not degenerate into a mere boarding-house for epileptics. The many cases gathered together there should be carefully studied."

Bishop Potter—"Prejudice against such autopsies as you refer to has always struck me as singularly unintelligible. Unless we can look to a public institution to contribute such scientific knowledge as it may be within its reach to obtain, we are punishing the whole community for a somewhat artificial and sentimental forbearance in the case of individuals. That scientific investigations of the bodies of the dead have been of great value in protecting the living, is a fact about which there can be no question. And while I should be disposed to treat the feelings of the surviving relatives with consideration, I think that the bodies of epileptics that die at the Craig Colony should be within the control of the Trustees for such beneficent ends as scientific inquiry may serve."

Dr. Hamilton D. Way—"I trust such Bill may become a law on account of the benefit conferred thereby upon medicine through increased opportunity for dead house study and observation in those cases clinically noted during life."

Dr. E. V. Stoddard—"I think there is no doubt as to the advisability of granting the privilege of making autopsies in certain cases at the Craig Colony. In establishing that institution, the state provided for securing 'the humane, curative, scientific and economical care and treatment of epileptics, exclusive of insane epileptics.'"

Dr. Joseph D. Bryant—"It seems somewhat strange to me that at this day of scientific medical advance and practical escape from the popular prejudice regarding autopsies, than any other idea than one prompting early and free appliance of the only attainable means of affording relief from the physical confusion and mental despair always present with epilepsy, should be manifest. I cannot express it too strongly,—not only the great importance but the great need of early performance of autopsies in this disease,—and I sincerely hope that legal permission will be given for the purpose."

The Craig Colony for Epileptics, Mr. Editor, is deeply interested in the fate of Assembly Bill No. 227. It has happened in the past that we have been denied autopsies in the most valuable cases (such cases having been maintained wholly at the public expense at the Colony for years), the only reason for such refusal being founded on sentiment. This, to be sure, should always be respected, but in these days when autopsies are so carefully made without disfigurement, it would seem that mere sentiment should not be permitted to have the last say in a scientific matter of such vital importance to mankind generally.

The Colony respectfully urges that physicians generally will write members of the legislature of the respective districts, urging the passage of the Craig Colony Autopsy Bill, in the form in which it was introduced as follows:

Assembly Bill No. 227, "An Act to Amend the State Charities Law in Relation to Autopsies at the Craig Colony for Epileptics."

"Section XI. Have power (the superintendent), subject to the supervision and control of the Board of Managers, in case of the death of any patient at such institution, who shall have been maintained therein wholly at the public expense, to make, or cause to be made, an autopsy on the body of such patient."

Very truly yours,

W. P. SPRATLING, M.D.,

Medical Superintendent Craig Colony for Epileptics.

SONYEA, March 10, 1904.

PNEUMONIA AS AN INFECTIOUS DISEASE.—The Rochester Health Bureau has decided to treat pneumonia as an infectious disease, and to ask physicians to report all cases just as they report diphtheria and smallpox.

SOCIETY PROCEEDINGS.

THE SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE.*

Fifth Regular Meeting, February 17, 1904.

The President, S. J. Meltzer, M.D., in the Chair.

Members Present.—Adler, Calkins, Crampton, Dunham, Ewing, Gies, Jackson, Levene, Lusk, Meltzer, Murlin, Norris, Richards, Wadsworth, Wallace, Wilson, Woodworth, Yatsu.

ABSTRACTS OF THE REPORTS OF ORIGINAL RESEARCHES.†

The Nature and Basis of Sexual Selection in Moths.—By Dr. H. E. Crampton. The object of the investigation described was to obtain a quantitative expression for the strength of the mating instinct in certain species of large Saturnid moths (*Philosamia cynthia* and *Samia cecropia*), and to determine the correlation between the mating instinct and structural characters. The results of earlier statistical studies upon the pupæ of these species were reviewed, dealing with the nature and basis of the process of natural selection during the period before emergence and at emergence. It was shown that (1) those pupæ which die after pupation and prior to metamorphosis are structurally different from and more variable than those individuals which successfully survive the pupal period, (2) those pupæ which become perfect moths are likewise different from those which cannot emerge as perfect moths, and (3) the basis for selective elimination is to be sought in correlation between the various structures. The mating period follows immediately after metamorphosis, when certain individuals with weak mating instincts fail to take part in the production of the next generation, and are thus "sexually eliminated." In order to determine the points mentioned above, pupæ of the two species named were isolated as the time for metamorphosis approached, and upon emergence were given one opportunity to mate. It was therefore possible to compare the pupæ of the two classes of mating and non-mating individuals. The results, briefly stated, are (1) that even slightly imperfect moths possess very little mating instinct, or in other words, that with the structural conditions associated with an imperfect power of emergence, is correlated a low grade of mating ability; (2) that the mating individuals of the perfect class differ structurally to a certain extent from the non-mating ones, but they are very much less variable than the latter class The importance of these results from the standpoints of inheritance and evolution is sufficiently clear to render extended discussion unnecessary.

Observations on a Serous Fluid of Unusually High Molecular Concentration.—By Dr. E. K. Dunham. The fluid was removed from the pleural cavity of a man suffering from lobar pneumonia. The patient was a scene-shifter in a theater and had suffered considerable pain in the chest for four months before his admission to the hospital. His occupation required severe labor for brief periods, during which he became much heated, with intervals of leisure and exposure to cold drafts of air. The immediate reasons for his admission were a chill and inability to continue work. There was nothing unusual in the clinical course of the pneumonia or peculiar in his treatment. A few days after he entered the hospital 400 c.c. of a clear serous fluid was aspirated from the affected side of the chest and was examined on the same day, with the following results: Distinctly alkaline; specific gravity 1.021; depression of freezing point 1.383° C. (mean of three examinations with different portions of the fluid, 1.395, 1.385 and 1.370° C. respectively); electricial conductivity 0.009119; chlorine calculated as sodium chloride 0.58 per cent.; total nitrogen 0.84 per cent.; nitrogen from washed tannic acid precipitate expressed in percentage of the fluid 0.83 per cent.; proteid (N x 6.25), 5.21 per cent. of the fluid; traces of reducing substance (sugar ?) after removing proteids with ferric acetate; traces of nitrogen liberated by hypobromite of soda; no extractives of appreciable amount upon shaking with ether, acetic ether or chloroform.

The matter of chief interest in the results was the considerable depression of the freezing point —0.81° C. greater than that by the blood, which was found to be 0.57° C. This 0.81° C. represents nearly 0.438 gram-molecule in solution in excess of the molecular concentration of the blood, and appears to be a clear indication that osmotic interchanges between this fluid and the blood did not freely take place, possibly because of a thick layer of fibrin upon the pleural surfaces. Such a deposit would not, however, explain the high molecular concentration of the fluid. It appears most probable that this was produced subsequent to the formation of the fluid, by changes in the larger molecules originally present in solution or by the solution of substances not at first dissolved. These substances could not be dissociable, because the electrical conductivity was rather lower than is usual in such fluids. If the substances causing the high molecular concentration were organic compounds, they were not extractives soluble in ether, acetic ether or chloroform.

On the assumption that cleavage products of proteid substances, precipitable with tannic acid, might be present and cause the unusual depression of the freezing point, the following experiments were made: Sterile horse serum, which had not been subjected to heat, was divided into portions. Of these some were kept for controls and others were inoculated with pure cultures of *Staphylococcus pyogenes aureus* or Fraenkel's pneumococcus. Freezing-point determinations were made on certain of these portions and the rest were sealed up in pipettes holding 100 c.c. each. These were incubated at 37° C. for a week, when freezing-point determinations were made on one of the controls and one of the tubes inoculated with each of the bacteria mentioned. Cultures at this time showed the presence of great numbers of the species used, with no admixture of other species. The remaining tubes were left in the incubator for several months, when cultures proved to be sterile. The results of physico-chemical examination of these sera are tabulated below:

HORSE SERUM A

	Sterile Controls		Inoculated with Staphylococcus.	
1903	° C		° C	
May 19,	Δ—0.580°;	K—0.009394	Δ—0.585°;	K—0.009370
May 26,	Δ—0.580°;	K—0.009491	Δ—0.585°;	K—0.009674
1904				
Jan. 16,	Δ—0.590°;	K—0.009684	Δ—0.640°;	K—0.010128

HORSE SERUM B

	Sterile Controls		Inoculated with Pneumococcus.	
1903	° C		° C	
May 21,	Δ—0.560°;	K—0.009516	———	———
May 28,	Δ—0.560°;	K—0.009516	Δ—0.580°	———
1904				
Jan. 15,	Δ—0.600°;	K—0.009897	Δ—0.640°;	K—0.010372

These data show but slight changes in the molecular concentration of the sera, and such changes as have occurred occasion an increase in the electrical conduc-

* Proceedings reported by the Secretary, William J. Gies, New York.

† The authors of the reports have furnished the abstracts. The Secretary has made only a few abbreviations and minor alterations in them.

tivity as well as in the depression of the freezing point, showing that dissociable bodies have been produced. The experiments, therefore, fail to explain the high molecular concentration of the serous fluid from the chest, but it is possible that further experimentation in this direction will be more successful.

An Experimental Study of the Eosinophile Cells During Infection with an Animal Parasite—Trichina Spiralis.—By Dr. Eugene L. Opie. (Presented by Dr. James Ewing.) The administration of *Trichina spiralis* to the guinea-pig causes an increase of the eosinophile leucocytes in the blood comparable to that which accompanies human infection. There is no constant alteration of the number of these cells until the end of the second week after infection, when their relative and absolute number rapidly increases and reaches a maximum at the end of the third week. At this time embryonic trichinæ are in process of transmission from the intestinal mucosa by way of the lymphatic vessels and the blood through the lungs to the vascular system. Eosinophile cells accumulate in the mesenteric lymph glands and in the lungs and form foci which resemble small abscesses in which polynuclear leucocytes are replaced by eosinophile cells. These cells are provided with polymorphous nuclei and do not differ from the eosinophile leucocytes of the circulating blood. Accumulation of the eosinophile cells in the mesenteric lymph glands and in the lungs is explained by the transmission of the embryonic parasites through these organs. Increase of eosinophile cells in the blood and in other organs is accompanied by characteristic changes in the bone marrow. The fat is diminished in amount and cellular elements replace it. Cells with eosinophile granulation are present in immense number and particularly numerous are the eosinophile myelocytes, cells peculiar to the bone marrow. Eosinophile cells undergoing mitatic division are more numerous than usual. The number of eosinophile leucocytes in the blood always diminishes before death so that the proportion is usually less than one per cent. Infection with a very large number of trichinæ causes a rapid diminution of the number of eosinophile leucocytes and is quickly fatal. The eosinophile cells of the bone marrow exhibit degenerative changes of which nuclear fragmentation is most characteristic. Similar changes may affect the eosinophile cells of the intestinal mucosa and of the mesenteric glands. Mild infection stimulates the eosinophile cells to multiply, but severe infection causes destruction.

Subcortical Expressive Reflexes and their Spinal Pathways.—Dr. R. S. Woodworth reported interestingly on some experiments done in collaboration with Professor Sherrington in the latter's laboratory. It was shown that in a recently decerebrated cat, powerful sensory stimuli evoked reactions such as in a normal animal would be expressive of pain, anger, and other similar emotions. Such reactions are therefore primarily subcortical reflexes, and not dependent on the organ of consciousness. The "ether cry" also appeared in decerebrate animals. The sensory spinal pathway, by which these signs of pain were aroused, was found by experiments in which partial cross sections of the cord were made, to run not in the posterior but in the lateral columns. The pain pathway from either side of the body runs up both halves of the cord, but more largely up the opposite half.

An Experimental Study of the Cause of Shock.—W. H. Howell. (Presented by S. J. Meltzer.) Prof. Howell's experiments were made upon dogs anesthetized with morphine and ether and brought into a condition of shock by operations of various kinds. Blood-pressure records were obtained in the usual way during the experiment. The following general conclusions were reached: (1) The most important and dangerous feature of severe shock is a long-continued, practically permanent fall in blood pressure to about 20 to 40 mms. of Hg. This condition is designated as vascular shock and is due to a long-lasting loss of activity of the vasoconstrictor centre. (2) A second important result of shock is a very rapid and feeble heart-beat. This condition is designated as cardiac shock; since, although it may result secondarily from the permanent fall in blood-pressure it may also occur quite independently of the vascular shock as a primary result of the operations. Cardiac shock, as far at least as the rate of beat is concerned, is due to a more or less permanent loss of activity of the cardio-inhibitory center. (3) Intravenous infusions of alkaline salt solutions (NaCl 0.6 per cent., Na_2CO_3 0.5 per cent.) cause a rise of pressure by increasing the force of the heart-beat. The effect is more durable than with salt solution alone and may be renewed by repeating the injection. (4) The fundamental cause of vascular and cardiac shock is not exhaustion of the vasomotor and cardio-inhibitory centres from over-activity, but a more or less permanent inhibition of these centres from excessive stimulation of the inhibitory paths.

New Members.—Drs. Isaac Levin and J. P. Atkinson were elected to membership.

Officers for the ensuing term were elected as follows: President, S. J. Meltzer, Vice-President, James Ewing; Secretary, William J. Gies; Librarian, Graham Lusk; Treasurer, Gary N. Calkins.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON ORTHOPEDIC SURGERY.

Stated Meeting, held February 19, 1904.

The President, Homer Gibney, M.D., in the Chair.

Arthropathies of Locomotor Ataxia.—Dr. George R. Elliott presented several patients from the Montefiore Home. He said that in the first patient the left knee was the only joint affected, showing genu inversum, which should not be confounded with primary genu valgum. There was a certain enlargement of the head of the tibia, edema about the knee-joint and enlargement of the leg and thigh. The left leg and thigh measured one inch more than the right. Incidentally, he wishes to refer to the patient's chief subjective symptom—a metatarsal pain. Four operations have failed to relieve this troublesome symptom. The second patient shown was a man of about fifty-seven years, confined to a wheel-chair and bed. The joints involved were the small joints of the fingers, chiefly the first phalangeal joints. These deformities were globular in shape, painless and devoid of swelling and have been so from the beginning. The patient in his wheel-chair with overcoat on, placed the heels of both feet behind his head, demonstrating the condition common in locomotor ataxia known as muscular hypotonia. The doctor further presented a cast of the hand of a third patient who was unable to be moved. The cast showed very marked globular swellings of the phalangeal joints. This patient also had a very marked arthropathy of the left shoulder so badly involved that he could dislocate the joint at will. The head of the bone was markedly enlarged, the acetabulum filled up and destruction of the capsule and ligaments—all painless from the beginning. Neuropathic arthropathies are not confined to locomotor ataxia, but are found in syringomyelia and certain other special cord diseases. As in the present cases, the characteristic manifestations are rather sudden onset of a painless swelling, usually globular in shape, with partial subsidence and recur-

rence. The globular shape and absence of redness and pain differentiate it from the spindle-shaped, painful swelling of arthritis deformans. Section of an advanced arthropathic joint shows destructive changes. There are usually laxity of the ligaments, rarefaction of the bony parts, general edema about the joint, which extends into and along the limb. It is not an edema that pits on pressure. Only 3 to 4 per cent. of all tabetic patients manifest arthropathies. Statistics show that the affected joints are much more frequent in the lower extremities and not at all common in the small joints, seen in the two cases presented.

Dr. V. P. Gibney, in the discussion, said he thought the laxity of muscles in Case II very interesting, and wanted to know whether that was a common feature of the disease. He thought it extraordinary to see a patient as old as this man, with ligaments so relaxed as to enable him to put his legs over the back of his neck. In those cases he had seen, the laxity of ligaments was in the ankles and knees. The other case was interesting on account of the neuralgia in the internal plantar, and failure to get relief after section of the nerve, but he presumed that the tabes from which the man suffered, rather ruled it out as a case of metatarsalgia.

Dr. R. Sayre said he was sorry not to have heard the remarks on the cases when presented. He had not seen the man's hip, nor seen him standing, but he thought possibly he might be fitted with hip-splint apparatus to hold the hip so he could walk, if simply the ligaments were at fault, through relaxation. In many cases the relaxation affects the joints of knees and ankles as well. Dr. Sayre had had many cases where the patients could walk around comfortably with lateral support on knees, where they were incapable of standing without this support, the ligaments being so relaxed. In these cases the joints are very prone to luxate.

Dr. Brewer said he was interested in the case reported. He had treated a similar case: A neurotic boy who complained of pain in the metatarsal joint of the great toe. He could not step nor walk. There was an extremely tender point over the joint, which was a little thickened and reddened. He had worn a badly fitting shoe, which perhaps caused slight deviation of the toe. The joint was opened and found to be healthy. A little piece of bone was taken away, and the pain was relieved. A return of acute pain occurred, which was relieved by the application of the cautery. This relief continued for a number of weeks, but the pain returned so severely the boy could do nothing. He was in a hysterical, nervous state. He was seen by Dr. Blake in Dr. Brewer's absence, who took out one inch of the internal plantar nerve, affording relief. Three months later, he again operated and took out the whole of the nerve, which presented a small neurofibroma near its origin. The pain came back after a while and the boy underwent a fourth operation, this time Dr. Bull operating. In about three months there was a fifth operation, the result of which is unknown. Dr. Brewer would like more light on the subject of these cases. He thought it rather common to find such laxity of the hip ligaments from non-use, that the case was not extraordinary.

Dr. Elliott said he believed it was a common symptom of locomotor ataxia, known as hypertonia, and, he believed, an early symptom. Neurologists present would doubtless settle that question. In reply to Dr. Gibney he said he believed the condition common. (Reference made by Dr. Gibney to the man putting his foot over his head.) It had nothing to do with arthropathy. In the patient he had presented, there were no changes in the hip-joints. It was due entirely to loss of muscular tone.

Dr. Dana said he could only confirm Dr. Elliott's statement that there is this relaxation, very marked, in most cases of arthropathies, usually associated with atrophy of the head of the bone. He was interested in hearing the remarks about splints for the joints. He thought it a mistake always to put splints on tabetic joints. He cited a case in illustration.

Dr. Brewer said that he believed the case he cited was one of psychosis, and that there was no organic disease of the nerve.

Dr. Sayre said that in marked relaxation of ligaments it was sometimes quite possible to slip the femur on the tibia; when the patient is upright and moves in any direction, there is danger of complete luxation of the joint, and possible rupture of the skin as well by constant violent slips. He had seen those who were incapacitated from going about except on two crutches, who, when properly fitted with apparatus, could walk without a cane. There was sufficient muscular power and sufficient coordination of the muscles to move the legs in anteroposterior motion, if something was put on to limit the lateral deviation. The speaker had a case of Charcot's disease of the ankle in which the ankle resembled osteosarcoma; there was the egg-shell crackling seen in malignant bone diseases. The patient was locked up in a plaster-of-Paris boot from the toe to the knee, in which he walked for a number of months, when a large part of the disability disappeared. In this case, back of the tabes, he had a syphilitic history. He was put on antisyphilitic medicine in large doses. The foot responded beautifully, and the incoordination disappeared. The man still retains his pin point pupils.

Lumbar Pott's Disease.—Dr. Homer Gibney presented a child of twenty months from the Dispensary of New York Hospital, referred as case of lumbar Pott's disease. No disease of the spine was, however, found, but a very marked scorbutic condition in addition to a pronounced general rachitis. The scorbutus responded quickly to treatment and the long posterior rachitic spinal curvature is yielding to a perfectly fitted frame on which the child is placed and mother instructed as to its management.

Acute Infectious Osteomyelitis of the Spine and the Acute Suppurative Perimeningitis.—This was the paper of the evening and was read by Dr. J. Ramsay Hunt.

Dr. Brewer, in the discussion, said he had only seen two such cases, both unrecognized at the time he first saw them. He had been looking for a comprehensive paper giving fuller statistics than could be found in abstracts from foreign literature, and such a paper had been read this evening. He thought it most valuable from a surgical point of view. In each of Dr. Brewer's cases there was a perirenal abscess. The pus was found to issue from diseased vertebral bodies. In both cases there was extreme sepsis. He supposed at first that the trouble came from the kidney. After exploring the kidney and finding it normal, he made a small opening in the psoas, then into the vertebral column, and removed the sequestrum. The first patient died in a week or ten days. After death an autopsy revealed a very extensive process. In the second case, a man had chills and fever, and complained of pain in the back, which had been relieved for a number of days before Dr. Brewer saw him; and with the relief of pain, there was the formation of a large lumbar indurated mass. This was opened. At the first operation a quart of pus was evacuated. The septic symptoms abated, but there was no closure of the sinus. A second operation

was done to remove a supposed diseased and suppurating kidney. By making a large incision, the region of the kidney was exposed, and found to be normal. The psoas was filled with pus;—also a focus in the body of the vertebra. Dr. Brewer said he had another case, but was not sure it was primary septic osteomyelitis. It occurred in the arch. It was an old case operated on before Dr. Brewer saw it. He simply provided better drainage. He thought these cases should be diagnosticated early, and that one should be on the look-out for them. The rate of mortality was high. The vertebral bodies are inaccessible, and require prompt treatment.

Dr. V. Gibney said that those of the Section who had been handling vertebræ for a great many years would feel especially in sympathy with a differential diagnosis. More cases should be recognized than have been in the past. In regard to prognosis of osteomyelitis of the vertebræ and of the hip, when Mr. Smith, of London, began to report cases, and Mr. McNamara followed, there was frightful mortality. As they were recognized earlier, the mortality was much lessened, because their acute infectious nature was understood and prompt measures were taken to secure relief. In place of dangled hips with a few half-opened abscesses, much better hips are now seen; the surgeon goes at once to the focus of disease, removing sometimes a head lying loose in the cavity, fixes the limb in good position, drains well and gets prompt relief and pretty stable hips. During the last year or two, when so much has been said and observed about congenital hips, he had found cases said to be such hips, with one or two tell-tale sinuses on the outer side of the thigh with history of acute abscess, which had opened when the child began to walk lame. A patient came to see Dr. Gibney recently from a distance, troubled with congenital dislocation. He saw a cicatrix on the inner side of the thigh. He was told that at nine months the child had had an acute attack of hip trouble, the abscess opening and soon healing. When the child began to walk no attention was paid to the hip. There was an inch and a half shortening, and the child was labeled with congenital dislocation of the hip. He thought the points emphasized in Dr. Hunt's paper—early recognition and prompt surgical measures adopted for relief—were very opportune. In regard to pachymeningitis, etc., he was reminded of a neurological experience: Dr. Putzell read a paper when we were finding a number of those cases, and the speaker had put on record two or three cases of peripachymeningitis hypertrophica cervicalis—not acute. Those cases are simply eliminated. We have to recognize the disease as osteomyelitis. We have stopped talking about acute suppurative periosteitis and acute peripheral osteitis. Eight or ten years ago Mr. McNamara showed the speaker specimens in Westminster Hospital, declaring it was general osteomyelitis, and could not fairly be called periostitis.

NORTH BRANCH PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, February 10, 1904.

The Chairman, Dr. Samuel Wolfe, in the Chair.

The Unique Position and Value of Mercury in Therapeutics.—Dr. I. Newton Snively read this paper. He stated that in the frequency of its employment, it compared favorably with iron, but that here the similarity ended, the one being a builder up of tissue, while the other is a breaker down of tissue. He called attention to the fact that mercury had through all the ages occupied a prominent position in the materia medica, and reviewed the history of its use and the improvements in its administration in recent years. Without deciding upon the relative cholagogic values of blue mass, calomel and corrosive sublimate, or their means of action, he stated that there was agreement among the profession upon the main indications for the administration of calomel, when such symptoms are present as dull headache, yellow conjunctivia, constipation, sense of weight over the liver; no appetite, and general lassitude, and whether the process takes in one part or the other of the intestinal tract it is agreed that it acts upon the small intestines and upper part of the colon, hastening the contents downward, relieving hepatic engorgement, stimulating intestinal secretions and bile and producing large, watery stools. It is also of value in fractional doses in the early stages of typhoid fever and the diarrheal maladies of childhood. It passes through the stomach unchanged and thus does not interfere with the functions of this organ. Thorough trituration is of value and the joint administration of an alkali, preferably, sodium bicarbonate increases its effectiveness.

Therapeutics of Arsenic.—This paper was read by Dr. Howard S. Anders, in which he stated that the drug was an alterative, and while referring to the fact that the exact conditions produced by it were not known he called attention to the necessity of carefully watching for symptoms of arsenical poisoning when the treatment is long continued. The drug is an improver of nutrition and it would seem to be a direct stimulant to nutrition, by diminishing or checking the tissue change and indirectly it improves the nutrition by increasing the recuperative powers, and it would seem that some individuals need arsenic to create a normal neuromuscular vigor, just as the syphilitic needs the iodides and the chlorotic iron. He referred to the fact that Gautier, of Paris, had discovered arsenic in the human body and also that M. Berhand, of Paris, had discovered it in hens' eggs, which would indicate the necessity for supplying it when absent. In regard to its employment in tuberculosis, he acknoweldged a hesitancy in its use on account of the likelihood of deranging the mucosa. The natural arsenical waters of Levico are valuable in some cases of this disease. He stated that his experience with the drug in the treatment of chorea extended to about twenty cases, in all but two of which the administration in the form of Fowler's solution in gradually ascending doses, in conjunction with dietetic, hygienic and psychic measures was satisfactory. He remarked that in St. Vitus' Dance, the drug seemed to be almost a specific, and believed it was best administered by beginning with about three drops, and increasing about two or three drops each successive day. He referred to the work of Rope, Woxham and others, the latter of whom recommends the hypodermatic use of the arsenite of soda, beginning with one-tenth grain doses and rapidly increasing to one-half or two-thirds grain doses. He considered the drug of great importance in the treatment of chronic malaria, anemias, cachexias, in the recurrent estivo-autumnal malarial fevers, and in intermittent malarial neuralgias. He reported a case of recurrent type, each spring and fall, in which he had secured particularly good results. He also stated that personally he had suffered from tertian malarial fever each spring and autumn until he took the drug off and on for three months, continuing until the first symptoms of gastro-intestinal irritability manifested themselves, since which time (fourteen years ago) he has not had any symptoms of the disease. In certain cases of pernicious anemia and arthritis deformans, he believed that it had a beneficial effect. In scrofulous conditions, glandular enlargement and bronchial catarrhs, it is always of value.

Digitalis.—A paper on this drug was read by Dr. William Egbert Robertson, in which he reviewed the various pharmaceutical preparations and their actions and believed the preparation made from Allen's leaves to be the most valuable. In regard to digitoxin the chemistry is very incomplete; it seems to have some effect in relieving the blood pressure, but during its administration the volume of urine and pulse rate should be noted from time to time in order to avoid the possibility of cumulative action. He referred to the case of a young man, twenty-five years of age, who had suffered from a parenchymatous Bright's disease. He was edematous and constipated, but there were no symptoms of uremia. He was given the infusion for several days, without any apparent effect. One day he got up, walked to the clinic, and before his case could be attended to, he vomited rapidly and showed manifestations of the toxic effect of the cumulative poisoning. Dr. Roberston preferred the infusion, and stated that he had not secured nearly so good results by using the digitalin as by using the digitalis in two-dram doses every three hours. The drug is employed for its effect upon the circulation and especially after loss of cardiac power; in cases of weakness without valvular disease, in simple dilatation; and all forms of valvular heart disease, especially mitral disease, it is of value. In simple hypertrophy, aneurism and a high degree of arterial sclerosis, it is contraindicated.

The discussion was opened by Dr. Hobart A. Hare, who referred to the value of $^1/_{200}$ grain doses of biniodide of mercury, in a watery solution every six to eight hours for the purpose of aborting acute tonsillitis. He believed that all preparations of mercury were contraindicated in cases of tuberculosis and that one of the chief reasons for the value of calomel in cases of intestinal disturbance was on account of its power of eliminating intestinal impurities. He believed arsenic to be of value in tuberculosis and anemia, as are also small doses of arsenate of copper in some cases of the latter disease, when iron does not seem to do so well. In regard to digitalis, he believed chemically and physiologically tested and carefully prepared fluid extract was the best, and recommended that the physician have it put up regularly, of a known strength, at certain reliable pharmacists. He felt that many cases of untoward results in the administration of digitalis were due to the fact that the physician was not thoroughly familiar with the strength. He also referred to the danger of the cumulative effect of digitalis, caused by the non-absorption of the drug at the time of its administration, believing that when the required dose is ascertained, the patient should be kept there, instead of increasing it. Absorption is also aided by the conjoint administration of mild doses of Hoffman's anodyne.

Dr. Ludwig Loeb referred to the value of calomel in conjunction with some active diuretic in the treatment of dropsical conditions. In the administration of mercury in tertiary syphilis and other diseases, it is very apt to produce mercurialism, which should be carefully watched for and the drug discontinued, so soon as these symptoms appear. Arsenic, he remarked, was particularly effective in diseases of the glandular structures. It is also of value in skin diseases, such as psoriasis and lupus, and in anemia. Digitalis, he did not view as a true diuretic, but rather as a heart tonic, acting by stimulation and thus increasing the circulation and secretion of urine.

Dr. Walter I. Pennock referred to the difference in strength of the various drugs put up by the different houses, and urged the necessity for uniformity in this direction. In regard to calomel he believed as good results were secured by fractional doses as the administration of a single large dose. He stated that he had never seen a case of the cumulative action of digitalis, and believed the best results would be produced by use of the fluid extract, and after getting up to a sufficient dose by dropping back again to about half that amount, and again gradually increasing.

Dr. William L. Pepper stated that he had treated 13 cases of diphtheria with biniodide of mercury in one house, all of which recovered.

Dr. I. Newton Snively, in closing, stated that he believed the value of any drug depended upon the amount which was absorbed. In the administration of calomel, he recommended one-tenth of a grain every hour, combined with bicarbonate of soda and thoroughly triturated, and believed that the best results were secured with fractional doses of this drug.

Dr. Howard S. Anders, in closing, believed arsenic to be of value in cases of tuberculosis when fever was absent, and urged the necessity of carefully prepared preparation of digitalis of uniform strength.

Dr. William Egbert Robertson, in closing, stated that he considered the effect of the fluid extract of digitalis upon the stomach less irritating than that of the other preparations. He believed that mercury may produce nephritis, to which Kauffman and other German observers have called attention.

BOOK REVIEWS.

THE MEDICAL EPITOME SERIES. MICROSCOPY AND BACTERIOLOGY. A Manual for Students and Practitioners. By P. E. ARCHINARD, A.M., M.D., Demonstrator of Microscopy and Bacteriology, Tulane University of Louisiana, Medical Department. Series edited by V. C. Pedersen, A.M., M.D., Instructor in Surgery and Assistant Anesthetist at the New York Polyclinic Medical School and Hospital, etc. Illustrated. Lea Bros. & Co., Philadelphia and New York.

THIS excellent little volume of the Medical Epitome Series affords a concise and clear presentation of the essentials of bacteriology and bacteriological technic without neglecting the more recent achievements of this science such as the Roux-Nocard method of culture. Pathogenic microorganisms other than bacteria, such as streptothrix, plasmodium and ameba are discussed in separate chapters and the final pages are devoted to the bacteriological examination of water, air and soil. Though the book contains but 210 pages it will be found a remarkably complete guide for the laboratory, and a series of questions appended to each chapter will make it handy for the student. Excellent colored illustrations abound throughout the volume.

HAND ATLAS OF HUMAN ANATOMY. By WERNER SPALTEHOLZ and W. HIS. Translated by LEWELLYS F. BARKER. 3 Volumes. S. Hirzel, Leipzig. G. E. Stechert, New York.

IT has rarely been accorded to the reviewer to have the pleasure of looking over so attractive a work as that under consideration. From the illustrative as well as the scientific side we think this one of the best examples of anatomy making with which we are acquainted.

The work is termed a hand atlas. It is more than this. It almost brings the cadaver to the study table, so realistic are the illustrations and so sharp and vivid the pictures left. With this work the student and the older practitioner as well can rehearse their anatomy without the inconvenience and discomforts of the dissecting room. This feature alone commends it to all who would keep a better grip on their anatomical knowledge, al-

though we hasten to add it can never take the place of the section room for the beginner, notwithstanding its superlative qualities.

But further and behind this excellent illustrative feature, there are more philosophical pedagogic principles involved that render the book, we think, unique. Nowhere, for instance, apart from special monographs, are the intricate anatomical relations of the nervous system set forth as here. The conception of the whole organ with its coordinate relations to other parts of the body is most felicitously set forth.

We can only hope that such a work will meet with a wide recognition that may cheer the economic instincts of publishers and prove the forerunner of a group of text-books on anatomy of similar stamp.

ELEMENTARY BACTERIOLOGY. By M. L. DHINGRA, M.D., C.M.Edin., Diplomate in State Medicine, University of Cambridge, Member of Sanitary Institute, etc. With colored frontispiece and illustrations in the text. Longmans, Green & Co., London, New York and Bombay.

AN attempt has been made in this volume to represent in a concise manner the fundamental principles of Bacteriology. The material has been selected and arranged so as to meet the ordinary requirements of Indian students and practitioners, so that typhoid, dysentery, plague, cholera and malaria are treated rather in detail for so small a book. The practical part of the subject is discussed very briefly in a short appendix. The text is interesting and thoroughly up to date.

A MANUAL OF BACTERIOLOGY. By HERBERT U. WILLIAMS, M.D., Professor of Pathology and Bacteriology, Medical Department, University of Buffalo. With ninety-nine illustrations. Third Edition, Revised and Enlarged. P. Blakiston's Son & Co., Philadelphia.

THIS book is sufficiently long before the profession to demand no more than a passing notice. The plan used in the preceding editions has been followed in the preparation of the present one; the only departures being the insertion of a short, historical sketch and the freer use of references of original articles and reviews. In the author's own words the purpose of the book is to give in the smallest possible space the facts which a physician must know with some of those which it is desirable that he should know and a little of that which he may learn if his needs or inclinations lead him to go further. Much time has been spent on the index, so as to make the contents quickly accessible.

BACTERIA, YEASTS, AND MOLDS IN THE HOME. By H. W. CONN, Ph.D., Professor of Biology, Wesleyan University. 293 pages. Illustrated. Ginn & Company, New York.

IN preparing this work Prof. Conn has done a real service for all who are interested in household economics, and those who are not thus interested would do well to spend a couple of hours in its perusal. The book is just what it aims to be, a practical and popular epitome of the newer conceptions in bacteriology, in so far as they directly affect the life and well-being of the home. Of especial interest is the chapter on Food Preservatives, which touches on the much discussed question as to the harmfulness of the indiscriminate use of such substances as borax, formalin, salicylic acid, etc. Prof. Conn's conclusions are sound and wholesome, and as such are valuable data on the subject. There are chapters on the care of the sick room, disinfection, infection and immunity, and an appendix describing some simple experiments for those who can fit up inexpensive apparatus. The book is especially valuable to those who are taking up the modern methods of preparing food in our various cooking schools, because it has a truly scientific author who can back up what he says by actual demonstration.

ANATOMY APPLIED TO MEDICINE AND SURGERY. By D. E. MUNDELL, B.A., M.D., Professor of Anatomy, Queen's University, Canada. 492 pages. British Whig, Kingston.

WE are sorry not to speak more favorably of a work whose author is evidently so well intentioned; for the poor impression which the volume makes on one is probably due to its mechanical rather than to its literary execution. But upon the first page is an inter-leaf with a list of 32 errata which in these days of scientific accuracy among publishers is somewhat disquieting. Then the paper is of an inferior quality and shows blots and blurs of ink in many places which spoil the book's appearance as a keepsake. Upon the whole, however, the volume is rather complete for its size. Each chapter is prefaced by a résumé of the anatomy of the part in question with its relations, landmarks and some account of the diseases to which it is subject, with brief mention of the simpler operations likely to come under the care of the general surgeon. The book just falls short of being indispensable, as it is, there are doubtless many who will find it useful in refreshing their minds when the several exhaustive works in this field are not for the time being available.

BOOKS RECEIVED.

The MEDICAL NEWS *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* MEDICAL NEWS *will shortly appear.*

HOWE'S HANDBOOK OF PARLIAMENTARY USAGE. Hinds & Noble, New York.

PRÉCIS D'UROLOGIE CLINIQUE. By Drs. A. Letienne et J. Masselin. 8vo, 466 pages. Illustrated. C. Naud, Paris.

A MANUAL OF MEDICINE. By Dr. W. H. Allchin. Volume 5. 8vo, 687 pages. Illustrated. The Macmillan Co., New York.

THE EYE; ITS REFRACTION AND DISEASES. By Dr. E. E. Gibbons. 8vo, 472 pages. Illustrated. The Macmillan Co., New York.

LABORATORY WORK IN PHYSIOLOGICAL CHEMISTRY. By H. C. Jackson, Ph.D. Second edition. 8vo, 148 pages. John Wiley & Sons, New York.

COMPLETE MEDICAL FORMULARY. By Dr. J. C. Wilson. Third revised edition. 264 pages. J. B. Lippincott Co., Philadelphia and New York.

OPHTHALMIC SCIENCE AND PRACTICE. By Dr. H. E. Juler. Third edition. 8vo, 733 pages. Illustrated. Lea Brothers & Co., New York and Philadelphia.

HAND ATLAS OF HUMAN ANATOMY. By Dr. W. Spalteholz. Translated by Dr. L. F. Barker. Three volumes. 8vo, 872 pages. Illustrated. G. E. Stechert, New York.

DISEASES OF THE NERVOUS SYSTEM. By Dr. H. Oppenheim. Translated by E. E. Mayer. Second American edition. 8vo, 953 pages. Illustrated. J. B. Lippincott Co., Philadelphia and London.

TEXT-BOOK OF LEGAL MEDICINE AND TOXICOLOGY. By Drs. Frederick Peterson and Walter S. Haines. Volume 2. 8vo, 825 pages. Illustrated. W. B. Saunders & Co., New York, Philadelphia and London.